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OLD AGE: A CLINICAL, SOCIAL AND NUTRITIONAL SURVEY OF SEVENTY PATIENTS OVER SIXTY-FIVE YEARS OF AGE SEEN IN A HOSPITAL OUT-PATIENT DEPARTMENT IN MELBOURNE.

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REPEATED attention has been drawn in the last decade to the relative and absolute increase in the number of persons of advanced age in many civilized communities. Statistics indicating the changing structure of the population in England and Wales are shown in Table I.

A similar trend has been occurring in Australia since 1921 (Table II).

This increased proportion of old people in the population has been brought about partly by the fall in the birth rate which has occurred since the beginning of this century, and partly by the remarkable decline in the infant mortality rate in the same period. In the first decade of the twentieth century in Australia the expectation of life at birth of a male was 55·2 years: it is now 66·1 years. After a century of intensive immigration of young people the population of Australia is an "aging" one, and this will undoubtedly increase the proportion of "over sixty-fives" in the community.

While the expectation of life at birth has increased dramatically during the past fifty years, there has been little change in expectation once the age of sixty-five years is reached (Table III).

Death in this age group is still due, most commonly, to cardio-vascular disease or cancer, so that antibiotics and improved standards of public health ("social good manners") have had little appreciable effect on mortality in the aged. However, it should be of interest to the physician that the figures quoted in Table III may be expressed more forcefully in a different way: a male of sixty years has a 70% chance of surviving till the age of seventy years, and once he has achieved seventy years he still has a 44% chance of reaching eighty years. The female is offered even greater hope: at sixty years she has an 80% chance of reaching seventy years, and at seventy years a 54% chance of reaching eighty years.

Now these statistics have important socio-economic implications. In the first place the proportion of productive

[1] Aided by a grant from the National Health and Medical Research Council of Australia.
[2] Assisted by a grant from the Government of Victoria.

TABLE I.
Age and Sex Distribution of Population for England and Wales in 1931 and 1951.[1]

Age. (Years.)	1931.				1951.			
	Male.		Female.		Male.		Female.	
	Thousands.	Percentage.	Thousands.	Percentage.	Thousands.	Percentage.	Thousands.	Percentage.
0 to 4	1510	7·9	1480	7·1	1896	9·1	1823	8·0
5 to 14	3298	17·2	3232	15·5	3065	14·6	2949	13·0
15 to 34	6471	33·8	6870	33·0	5850	27·9	6087	26·7
35 to 64	6581	34·4	7547	36·3	8211	39·1	9075	39·9
65 and over	1273	6·7	1690	8·1	1957	9·3	2832	12·4
Total	19,133	100·0	20,819	100·0	20,979	100·0	22,765	100·0

[1] Quoted from Benjamin (1952).

workers in the community is diminishing, while the proportion of aged persons requiring pensions is increasing. In the second place, an additional burden, that of housing old people, is being thrown on municipal authorities. And finally, as if to disprove the contention that population statistics have no immediate appeal to the clinician, there has been an increasing interest in the physiological and clinical problems of old age, so that a new specialty—geriatrics—has emerged in the field of clinical medicine.

The very stimulating and valuable work on geriatrics which has been done in both Great Britain and America since World War II has very little bearing on the Australian social scene. Only in terms of Australian conditions can the answers be given to such important questions as the following: Are old people adequately clothed, housed and fed? Is their pension sufficient to supply their biological needs? Are people physically and mentally capable of continued employment beyond the age of sixty-five years?

TABLE II.
Age Distribution of Population in Australia, 1911 to 1947.[1]

Census Year.	Males (100%): Age in Years.			Females (100%): Age in Years.		
	Under 15.	15 to 64.	65 and Over.	Under 15.	15 to 64.	65 and Over.
1901 ..	33·89	61·80	4·31	36·51	59·88	3·61
1911 ..	30·84	64·82	4·34	32·52	63·28	4·20
1921 ..	31·64	63·88	4·48	31·79	63·83	4·38
1933 ..	27·53	66·09	6·38	27·42	65·99	6·59
1947 ..	25·48	67·08	7·44	24·63	66·71	8·66

[1] *After* Walker (1952).

In Victoria some of the sociological aspects of this problem of the aged are being studied at present by Dr. B. A. Hutchinson and his colleagues in the Department of Social Studies at the University of Melbourne, and the results of their work are awaited with keen interest.

Our own interest in the problem has led us to study a group of seventy out-patients over the age of sixty-five years who have attended for investigation and treatment at the Clinical Research Unit at the Royal Melbourne Hospital. We set ourselves the task of answering the following questions: (i) What were the clinical conditions which led them to seek medical advice and how did they respond to treatment? (ii) Apart from their presenting illness, what was their general state of health? (iii) Was their income sufficient to supply their basic needs, particularly in regard to nutrition, clothing, housing and fuel? (iv) What, in general, were the main psychological difficulties involved in adjustment to old age and retirement? (v) In the case of males in particular, was there any valid reason why patients should not continue in some form of productive employment beyond the age of sixty-five years, the conventional age of retirement?

Clinical Material and Methods of Investigation.

Seventy patients over the age of sixty-five years attending the out-patient department of the Clinical Research Unit at the Royal Melbourne Hospital were personally interviewed. Most of them at one time or another had been in-patients at the Royal Melbourne Hospital; all were clinically examined by one of us (E.G.S.), and such radiological and laboratory examinations as were deemed necessary were carried out. A full social history was obtained (H.F.A.) from all patients, and in many instances home visits were made and interviews with relatives sought. In all cases a careful diet history was elicited (C.N.T.).

Clinical Findings.

There were 30 male and 40 female patients. The age composition of the group is shown in Table IV.

It will be seen that there were more males than females aged over seventy-five years.

The clinical diagnoses made when patients first attended the unit are shown in Table V.

It is not proposed to review clinical observations on these patients in great detail. The great majority of them presented with gastro-enterological complaints, reflecting the predominant clinical interests of this unit. Nearly all patients have improved as a result of treatment, although many remain in indifferent health owing to diseases other than those for which they first presented.

TABLE III.
Expectation of Life in Australia at Certain Quinquennial Ages Attained.[1]

Attained Age. (Years.)	Males.				Females.			
	1901 to 1910.	1920 to 1922.	1932 to 1934.	1946 to 1948.	1901 to 1910.	1920 to 1922.	1932 to 1934.	1946 to 1948.
0 (Birth)	55·2	59·1	63·6	66·1	58·8	63·3	67·1	70·0
65	11·3	12·0	12·4	12·3	12·9	13·6	14·2	14·4
70	8·7	9·3	9·6	9·6	10·0	10·4	11·0	11·1
75	6·6	6·9	7·2	7·2	7·6	7·7	8·2	8·3
80	5·0	5·0	5·2	5·4	5·7	5·6	6·0	6·0

[1] *After* Walker (1952).

There were 14 cases of gastritis. Inflammatory changes in the gastric mucosa become increasingly common with advancing years (Doig and Wood, 1952) and have been shown to be the cause of symptoms of dyspepsia. Hæmatemesis of moderate severity occurred in three cases in which gastritis was the only demonstrable lesion.

Eleven patients had a gastric or duodenal ulcer. Peptic ulceration giving rise to symptoms indicative of surgery at this age is an especially difficult clinical problem; there may be a disinclination on the part of surgeons to perform radical operations, yet should complications such as perforation or hæmorrhage occur the mortality rate is disturbingly high (Avery Jones, 1947). Since, in our limited experience, the results of surgical treatment of peptic ulcer in this age group have been good, a bold surgical approach to the problem is indicated.

TABLE IV.
Age Distribution.

Age. (Years.)	Males.	Females.
65 to 69 ..	11	19
70 to 74 ..	7	13
75 to 79 ..	10	7
80 and over ..	2	1

There were 19 patients with cholelithiasis, on 17 of whom cholecystectomy, usually with choledochotomy, was performed. Complications after operation were rare and long-term results were satisfactory. The incidence of cholelithiasis is believed to be relatively high in Australia (Hughes and Saint, 1952), and frequently gall-stones begin to inconvenience a patient for the first time in the seventh or eighth decade of life. The satisfactory results of treatment obtained in our elderly patients should encourage surgeons to take the optimistic view when biliary tract surgery is contemplated on patients aged over sixty-five years.

TABLE V.
The Clinical Diagnoses of 70 Patients when Admitted to the Unit.

Disease or Surgical Procedure.	Number of Cases.
Cholelithiasis	19
Gastritis	14
Gastric or duodenal ulcer	11
Infectious hepatitis	4
Pernicious anæmia	4
Diabetes mellitus	4
Hepatic cirrhosis	3
Chronic alcoholism	3
Relapsing pancreatitis	2
Hiatus hernia, hydatid disease, hæmochromatosis, diverticulitis, carcinoma of the stomach, ulcerative stomatitis, *erythema nodosum*, gastro-colic fistula, small bowel resection, tetanus, renal calculus (one case each)	11

Among the remaining patients were a number of clinical curiosities. Perhaps the most interesting case was that of a woman, aged sixty-eight years (reported elsewhere—Saint, Joske, Stubbe, 1952), who survived a severe attack of tetanus with complicating broncho-pneumonia. *Erythema nodosum* is a disease most commonly encountered in childhood and adolescence (Doxiadis, 1952); however, one woman, aged seventy-three years, developed classical lesions after a superficial wound infection.

The most dramatic illustration of the benefits of bold surgery was in the case of a man, aged seventy years, who was operated on for thrombosis of the superior mesenteric artery. After extensive resection of gangrenous small bowel only two feet of normal bowel remained, and after six weeks he returned to full employment as a crane driver.

That elderly patients do not present desperate surgical risks is shown in Table VI. Major surgical operations were performed on 33 patients with excellent results.

By virtue of the fact that only patients continuing to attend the out-patient clinic have been selected for study, deaths due to operation are not recorded in this table.

In 1936 Sir Alan Newton analysed the results of surgery on 100 patients aged over seventy years, and came to the following conclusion:

> Though the performance of major operations in patients advanced in years must cause the surgeon great anxiety, and though the margin of safety is decreased in the aged, the results obtained in this series lend some support to the dictum that "age is no bar to surgical operations", and that there is little justification for withholding the benefit of surgical treatment from those in need of it solely on the score of their advanced years.

In the intervening sixteen years anæsthesia in the hands of skilled experts has become much less hazardous, the risk of post-operative secondary infection has been greatly diminished by the intelligent use of a wide range of antibiotics, and each year has brought further refinements in surgical technique, so that Sir Alan Newton's sagacious words are more than ever apt.

The following case records illustrate the dramatic benefits of bold surgery in "poor risk" patients:

CASE I.—A male patient, aged seventy years, developed chronic diarrhœa following a gastro-enterostomy for a duodenal ulcer. He lost several stone in weight and developed congestive heart failure which responded to treatment. A gastro-colic fistula was demonstrated radiologically. At operation (performed by Mr. Grayton Brown) the fistula was excised, the procedure involving excision of sections of the jejunum and transverse colon with end-to-end anastomosis of both small and large bowel; and at the same time subtotal gastrectomy was performed. His post-operative course was uncomplicated, and he has returned to casual employment as a fruit picker in the Murray Valley.

TABLE VI.
Major Surgical Operations Performed on Patients in the Group.

Type of Operation.	Number of Cases.
Operations within biliary tract	17
Subtotal gastrectomy	3
Gastro-enterostomy	3
Prostatectomy	4
Herniorrhaphy	4
Massive small bowel resection	1
Thoracotomy (hydatid disease)	1

CASE II.—A female patient, aged seventy-five years, with symptoms and signs of a chronic duodenal ulcer and severe generalized osteoarthritis, hypertensive and ischæmic heart disease, chronic cystitis and *diabetes mellitus*, developed pyloric stenosis. After preliminary electrolyte adjustment and treatment with antibiotics, a posterior gastro-enterostomy was successfully performed by Mr. Julian Smith. After a satisfactory convalescence she returned home free from pain and vomiting.

Optimism, however, must be tempered with a note of caution. The diminution of cardio-respiratory and renal reserve which must be regarded as an inevitable accompaniment of the process of aging renders elderly patients less resistant to shock (Nathan and Joske, 1950). Moreover, there is at this age a particular vulnerability to pulmonary infection. The clinical picture of pneumonia is strikingly different from that in younger people—symptoms are of more insidious onset, and the absence of pyrexia and leucocytosis may deceive the unwary. Since elderly patients with fully developed bronchopneumonia respond less well than younger patients to treatment with antibiotics, the post-operative management requires the sharpest clinical vigilance.

It is probably true to say that the cleverest diagnosticians are those who practise among babies and elderly people, for at both extremes of life symptomatology does not always conform to the more familiar patterns encountered in youth and middle age. Of elderly patients Sir Humphrey Rolleston has said "the organs suffer in silence without any local or general disturbance". The pain experienced by elderly patients may not be commensurate with the

severity of the causative lesion; for example, a common pattern of cardiac infarction may be acute paroxysmal dyspnœa and shock without significant pain. It is not unusual for perforation of a peptic ulcer to be accompanied by relatively mild pain. Moreover, when pain does occur it is less easy to interpret, since the distinguishing features of site, quality and radiation may be misleading. In our experience of elderly patients with peptic ulcer and gallstones we have been repeatedly misled when we have tried to make a clinical diagnosis on the interpretation of pain alone; more than at any other period of life is it necessary to rely on laboratory and radiological aids to diagnosis.

Associated Disease.

Disabilities, in addition to those for which they presented for treatment, which were present in this group of 70 elderly patients are shown in Table VII. Many of these conditions must be regarded as the inevitable concomitants of senescence.

TABLE VII.

Associated Disease or Disability.	Number of Cases.
Arteriosclerotic vascular disease	25
Degenerative osteoarthritis	18
Bronchitis and emphysema	12
Defective vision	10
Hernia	8
Mental deterioration	6
Defective hearing	4
Prostatic symptoms	4
Neurological complications (sequelæ of cardio-vascular accidents)	4

The diagnosis of "arteriosclerotic vascular disease" made in 24 cases was used to include hypertensive and ischæmic heart disease and peripheral vascular disease. As it is the most common cause of death in old age, so also is it the most common cause of disability. However, an important clinical point must not be allowed to pass unrecognized. Elevation of the diastolic blood pressure is to be regarded as a physiological event in this age group. To cause a patient unnecessary anxiety by drawing attention to physiological hypertension is to do him a very great disservice. The range of diastolic blood pressures in this group of patients, who, it must be remembered, did not present with cardio-vascular symptoms, is shown in Figure I.

Degenerative osteoarthritis was a common cause of painful disability. The most common joints involved were the knee and hip joints, so that locomotion was interfered with. Pain and limitation of movement are too often regarded as an inexorable manifestation of senility; yet recent experience (Erickson, 1950) has shown that considerable alleviation of symptoms can be obtained with the various techniques of physical medicine.

Defective hearing or vision is a serious barrier to the enjoyment of full life. We have adopted a policy of recommending operative treatment of cataracts, and have advised the use of hearing aids when the patient is likely to benefit from their use.

Symptoms of prostatomegaly were present in four patients. With antibiotics and improved techniques the hazard of prostatectomy has been greatly reduced (Jacobs, 1949). Improved surgical techniques may likewise offer greater hope for patients with hernia (eight patients), so that they may be spared the misery of living with smelly and ill-fitting trusses.

Severe mental changes were present in six patients. In two patients, dementia was the result of long-standing alcoholism; in two, a diagnosis of involutional melancholia was made; and in two, mild dementia was a symptom of cerebral arteriosclerosis.

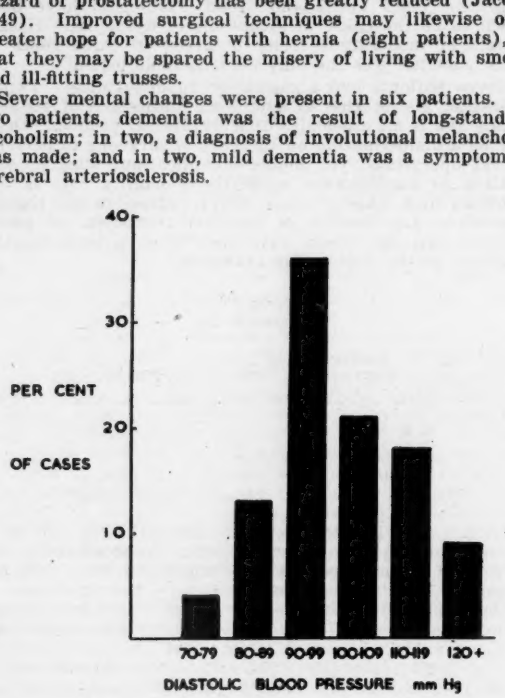

FIGURE I.

Diastolic blood pressures of 52 patients aged over sixty-five years.

Physical Assessment.

After physical examination and the assessment of any existing disability, patients were graded on the following basis: (i) Grade I: in excellent general health, capable of unrestricted physical activity; (ii) Grade II: in good general health, but moderate restriction of activity necessary on account of some associated disability; (iii) Grade III: severe restriction of activity; (iv) Grade IV: total incapacitation.

The physical status of the group is shown in Table VIII. In Grades I and II there was a greater proportion of females than males. This was no doubt accounted for by the fact that the mean age of the women in this group was lower than that of the men.

Social Findings.

In the taking of a social history every effort was made to obtain an integrated picture of the patient's living circumstances and of his or her adjustment to the altered *tempo* of life which follows the retirement of the bread-

TABLE VIII.

Age. (Years.)	Physical Status.							
	Grade I.		Grade II.		Grade III.		Grade IV.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
65 to 69	2	8	5	12	2	1	1	—
70 to 74	1	—	3	8	2	5	—	—
75 to 80	1	—	5	3	4	—	1	2
80 and over	—	—	1	1	2	—	—	—
Total	4	8	14	24	10	6	2	2

winner from active employment and the housewife's readjustment to a less busy day. This involved the recording of certain measurable factors, such as weekly income and housing facilities, and also some sort of assessment of the less material influences which contribute towards happiness and contentment in old age.

Marital Status.

Of the married patients, 19 were females and 15 were males (Table IX). Marital status had an important bearing on general contentment. It was found that amongst our 34 married couples only three were living together unhappily. On the other hand, 14 of the 30 widows and widowers of the group expressed unhappiness resulting from the loss of companionship and independence. The majority of these people were forced to surrender their domestic independence to live with relatives, not always amicably, and when they did attempt to carry on an independent life it was not always with success, owing to their incapacity or enfeeblement.

TABLE IX.

Marital Status.	Number of Persons.
Married	34
Widows	23
Widowers	7
Bachelors	3
Separated	2
Spinster	1

Income and Housing.

What constitutes an "adequate" income is a very debatable topic; but for the purposes of this present investigation it has been regarded as one which is sufficient to provide adequate housing, food and clothing, and which leaves a small margin for expenditure on luxuries such as modest travel, entertainment and tobacco.

Table X shows that, while the majority were well provided for, 11 patients were experiencing some form of economic hardship. Closer examination of the source of income (Table XI) reveals that only 18 patients relied entirely on the old age pension. In the majority income was derived from supplementary or alternate sources.

At the present time a person on the old age pension receives £6 15s. per fortnight. A married couple may have capital up to £219 before the pension is reduced. A pensioner may own his own home provided that he lives in it

TABLE X.

Adequacy of Income.	Number of Cases.
More than adequate	28
Adequate	31
Inadequate	11

himself and does not lease it for rental. In addition to the pension, supplementary income of 30s. per week in the case of a single person and £3 per week in the case of a married couple is legally allowable. Few of our patients were considered to be victims of poverty; but at present costs of living the majority of them had to be excessively thrifty and had little margin for any luxury expenditure.

Housing and income are so closely linked that they must be discussed together. The housing facilities of the group are shown in Table XII.

It is interesting to note here that of the 30 patients who owned their homes, 19 were receiving the old age pension, and of the sixteen living with relatives, all but two were pensioners.

Less than half the patients owned their own home; those who did were a great deal better off economically than those who had to spend a sizeable proportion of their income on rent. This is well illustrated in the following two case records.

An example of the former was a woman, aged seventy-one years, whose husband had been employed as a workshop foreman for many years. At the time when they were interviewed, both were receiving the old age pension. Both the patient and her husband were in poor health. As a result of a lifetime of careful financial planning, this couple had purchased a comfortable home, which they had kept in good

TABLE XI.
Source of Income.

Source of Income.	Sex.		Total.
	Male.	Female.	
Old age pension only	9	9	18
Pension other than old age pension	4	5	9
Old age pension and allowable assistance	10	11	21
Independent means	6	3	9
Wages	6	2	8
Husband in employment	—	5	5

repair and well supplied with household equipment. Because of their industrious ways and good management, this couple was able to live most comfortably on the old age pension, their major expenses being food, fuel and fares.

In contrast was a married man, aged seventy years, who had been employed as a watchman for eighteen years and who eventually retired for health reasons at the age of sixty-five years. For the past six years both the patient and his wife, who was crippled with arthritis, had been receiving the old age pension. This couple had been renting a house for thirty-one years, for which they were paying a rent of 17s. 6d. per week. The house was small and shabby and sparsely furnished and showed obvious signs of the occupiers'

TABLE XII.
Housing Facilities.

Type of Accommodation.	Number of Persons.
Own their home	30
Rent house or rooms	18
Live with relatives	16
Live at place of employment	4
Live in an institution	2

poverty. After paying the rent, which in this particular case was low, it was a struggle for this couple to meet their weekly expenses of food, fuel and lighting. Items such as new clothing were not possible without assistance from their children, who had their own families to support.

When housing units are built for aged couples by State or municipal authorities, rent subsidy will be as important a principle of social service as the dispensation of the old age pension.

Mental Adjustment to Aging and the Problems which Arise.

The degree of mental adjustment required to face enforced idleness after half a century of active employment is very great, and many men never learn to fill in the endless hours of leisure during retirement. For the woman, too, after a life of busy domestic tasks in the service of a husband and her family, the reduced *tempo* of life is difficult to tolerate. The fact that ordinary household tasks take longer to perform, and that elderly people generally acquire the habit of retiring early to bed, must be taken into consideration. Even so, many old people find that time hangs heavily on their hands. How did these seventy patients respond to this situation?

The great majority of our patients were found to be well adjusted. Fifty-four patients expressed themselves as being quite happy and contented with their lot and pursued their daily tasks with that disarming cheerfulness which is the chief attraction of old age to a younger generation. Most

of the men had some hobby which occupied much of their time during the day. The most fortunate in this respect were those who were well enough to do gardening or to look after fowls, for they were able to contribute in a small measure to their larders. Many enjoyed walks and many continued to take an active interest in sporting events. As to the women, cooking, cleaning and sewing took up much of their time—for a woman, of course, never retires; and their spare time was spent with their children's families or in activities associated with churches.

Now, although these patients were well adjusted when we interviewed them, many admitted that it had taken them some time to become accustomed to their altered life situation, and some of the men admitted that in retrospect they would have been happier to continue working beyond the age of sixty-five years.

The other side of the picture was presented by sixteen patients who were sufficiently ill-adjusted to present a very real problem. In some instances the recognizable cause was intrinsic; the personalities of three patients had always been inadequate, and their adjustment to life had always been unsatisfactory. They had formed few friends and had developed no personal interests, so that aging made them even more discontented.

In other patients extrinsic factors were the cause of maladjustment, the most common of which was the death of a marriage partner. Youth must not be scornful of the remarriage of elderly people, for this is often a very felicitous solution to unhappy widowhood. The illness of a patient or partner may be the cause of distressing anxiety, and to persons of unimpaired intellect frustration may result from severe disablement from whatever cause. Finally, senile mental incapacity constitutes a special problem.

The tragic side of old age was depicted by the 16 patients whose declining years were spent in a state of anxiety or frustration over ill health, or who, by virtue of their own obdurate personalities, were at war with themselves and their relatives. Although everything was done that was in the power of the physician and social worker to alleviate symptoms and to give advice on domestic issues, little material improvement was recorded in these cases.

Employment.

A few retired men expressed dissatisfaction at their abrupt retirement at the age of sixty-five years. However, of the 30 male patients in the group, eight were actually in whole or part-time employment. In two instances work was physically exacting—crane driving (a sixty-five year old patient), and bricklaying (a seventy-two year old patient). The oldest patient in employment was a seventy-seven year old saddlemaker earning £11 per week. Of the remaining twenty-two patients, seven had been retired for reasons of health and 15 had been compulsorily retired at the age of sixty-five years. Nine of these 15 patients were assessed in Grade I or II, while the remaining six patients were classified as Grade III with severe physical restriction.

Nutritional Findings.

In the assessing of the dietary status of our 70 patients, a suitable scale was sought against which to compare their diets. There is indeed a paucity of information on the specific nutritional requirements of old people; neither the National Research Council of America (1948) nor the Committee on Nutrition set up by the British Medical Association in Great Britain (1950) offers information on this point. For our present purposes the standards used by the Oxford Nutrition Survey in the last war were employed for comparison.

Diet histories were obtained from all the patients, and each diet was analysed. The Oxford survey figure for each nutrient was rated as ten marks, and the amount of each nutrient in the patient's diet was compared with this and rated accordingly. The over-all rating of each diet was obtained by totalling the ratings for each nutrient and comparing it with the total of the survey figures.

The diets were divided into four groups, as follows: (i) Those which were adequate in all respects were classified as excellent (rating 10). (ii) Those which were considered satisfactory, although slightly lacking in one or more factors, were classed as good (rating 8·5 to 9·9). (iii) Diets with a rating of 7·5 to 8·4 were considered to be of "borderline" adequacy. (iv) Diets containing less than three-quarters of the standard figures were considered to be poor and inadequate (rating less than 7·5).

Of the 70 patients studied, only 12 were taking diets which were adequate in all respects. When first interviewed, the majority of the patients were taking a satisfactory diet, while that of one-third—mostly females—was unsatisfactory.

It was found on investigation that many factors were responsible for the dietary habits of this group of old people, the most significant of these being energy expenditure, facilities for the preparation of meals, state of dentition, income, alcoholism, food habits and ignorance of food values.

TABLE XIII.

The Classification of the Diets of the Seventy Patients over the Age of Sixty-five Years.

Classification of Diet.	Males.	Females.
(i) Excellent	2	10
(ii) Good	20	11
(iii) Borderline	8	16
(iv) Inadequate	—	3

Energy Expenditure.

In general, caloric requirements decrease with advancing age. Old people who turned from an active life to a sedentary one and continued to eat far in excess of their limited requirements became considerably overweight.

If, however, they continued to be very active, it was noted that in many instances the actual energy expenditure was far in excess of the Calories provided in their diet. This particularly applied to females with bird-like appetites who carried out heavy household duties. They were underweight, and it was found that their general health improved remarkably after they had been advised to eat more.

Facilities for the Preparation of Meals.

The facilities available were of great importance in shaping meal patterns. They were, of course, closely related to housing conditions and domestic circumstances. The most favourably placed were couples living in their own house. Patients living by themselves often fared badly, either because of enfeeblement, or, in the case of some widowers, because of sheer inability to cook. In rented rooms, cooking facilities were often hopelessly inadequate. Even patients living with relatives were not always well off, for they were occasionally given food entirely unsuited to their medical requirements.

In Great Britain, where perhaps more attention has been paid to nutritional problems than in this country, this highly important question of the cooking facilities of old people living in substandard accommodation has been answered by some municipal authorities by the provision of mobile food kitchens issuing meals for pensioners unable to cook for themselves.

Income.

Although few of our patients experienced desperate hardship, most were forced to consider the cost of food carefully, choosing only the cheaper varieties and often omitting to buy important protective foods such as fruit, vegetables and milk. Once again patients living in their own homes were most favourably placed, for some were able to keep fowls and grow a few vegetables. Quite apart from the cost of food, the high cost of fuel caused many patients economic anxiety.

Teeth.

The diets of many patients suffered because of inability to masticate properly; three patients were completely edentulous and 20 were greatly handicapped by ill-fitting dentures.

Food Habits and Ignorance of Food Values.

Food habits and ignorance of food values were probably the most important factors of all leading to suboptimal nutrition in elderly patients. While a younger generation is growing up with some knowledge of the biological value of protective foods, the older generation still commits many dietetic sins as a result of ignorance and prejudice. Many old people are satisfied to appease their poor appetites with bread, butter and jam, and endless cups of tea, because they fail to realize that they are lacking vital food factors, and that the inclusion of protective foods—milk, cheese, eggs, fruit and vegetables—is important to their health and sense of well-being.

Many of these factors leading to inadequate nutrition may be corrected, and our experience has demonstrated the valuable role played by the trained dietitian attached to a general medical out-patient clinic. The suboptimal diets recorded in Table XIII have in most cases been improved, and this has resulted in an increase in the patient's well-being. Little indeed could be done about bettering patients' housing and cooking facilities; but a great deal of good was done by giving simple dietary instructions to the old people or their relatives. Advice was given about properly balanced diets, and caloric intake was increased when necessary and reduced in the obese. Good nutrition at any age leads to good health; but these details in the aged may easily escape the attention of the physician.

Discussion.

From time to time the spotlight in medicine is thrown on a new clinical problem. Several reasons, such as the changing structure of the population of this country, the many social changes that have followed in the wake of the last war, and collateral advances in medical and surgical science, make it necessary to examine carefully the health and welfare of old people in modern society. While the clinical material available to us in our out-patient clinic is not strictly representative of a cross-section of the aged population of Melbourne, it is thought that the experience gained from studying these elderly patients does give a fairly accurate perspective of the most pressing problems associated with longevity.

A very much greater proportion of medical practitioners' time is being spent among old patients. This state of affairs has arisen imperceptibly over the last decade or two, and the time has clearly come for us to affirm our clinical philosophy with regard to this age group in the light of recent advances in medicine. It is now possible, for example, to adopt a bolder surgical outlook in the care of patients who but a few years ago would have been regarded as very "bad risks", so that in the medical student's mind at least, advanced age must no longer be looked upon as a contraindication to surgery. The relief from pain and discomfort from conditions such as peptic ulceration, gall-bladder disease and prostatomegaly in increasing numbers of old people, due to these changing views, is one of the less obvious but no less important advances of medicine of the last decade.

Since the mathematical chances of longevity are high, it behoves us to adopt a similar more hopeful, more positive approach to the degenerative diseases common to old age. Osteoarthritis, bronchitis and emphysema, and hypertensive heart disease are admittedly incurable; but the frustrating disability they cause patients of clear mind should be a challenge to a high standard of treatment and not an excuse for passive defeatism. Physical medicine has much to offer arthritic and paralysed patients; antibiotics and breathing exercises have improved the lot of bronchitic subjects; and low salt dietary régimes with efficient digitalization mobilize many a patient with congestive heart failure. Therapeutic enthusiasm must always be tempered by sound clinical judgement, of course, for there are occasions when it is less meddlesome to be cautious and conservative—there is no place, for example, for the use of batteries of antibiotics in the treatment of a patient with bronchopneumonia who has an incurable senile psychosis.

Spectacles, false teeth and hearing aids are almost too mundane to interest a doctor, but to old people they may be matters of the highest importance, and every effort must be made to see that they are provided when necessary.

In the recent medical literature, geriatrics is a specialty to which increasing reference is being made. It is never quite made plain at what precise age a patient qualifies for the service of a geriatrician—in fact, the soundness of principle in claiming a separate discipline for the study of longevity is very debatable. The changes from middle age to old age are imperceptible, and are certainly less striking than the differences between the clinical problems of infancy and adulthood. No general improvement in the treatment of elderly patients will occur until all students and medical practitioners—not only a select band of pseudo-specialists—ponder over the special needs of their elderly patients.

Few of our patients were wealthy, and it was plain that although existing pensions are sufficient to supply the basic needs of patients, the exercise of strict economy is necessary in order that sufficient food, fuel and clothes may be bought, and that little is left over for any but the most modest pleasure. The most fortunate of pensioners in every respect are those who by thrift in the past years have been able to buy their own homes.

Although most of our own patients were well housed, the exceptions we were able to study gave us an insight into a problem that is likely to worsen in the ensuing years unless suitable measures are undertaken. In Melbourne there must be thousands of elderly patients living unhappily in rooms with poor cooking facilities, or with relatives, irritation being caused to both parties. Institutions, however efficiently run, are no answer to this particular problem; for however aged people may be, provided they are capable of self support, they have the undeniable right to independence. There is, of course, a very real need in the community for institutions for the chronically sick and disabled—a need which is at present by no means satisfied, and the absence of which is deplored by all hospital administrators. In the existing housing shortage the needs of old people must not be allowed to pass unnoticed. In Europe the problem has been squarely faced, and economic two-room units or "flatlets" have been built by the municipal authorities in several countries. In Denmark the grave psychological error was made of housing old people in isolation; but in Great Britain many new housing estates include a proportion of old people's homes built in a central position. Rents are, of course, modest. These two-room units are economical and easy to run; they encourage a spirit of sturdy independence combined with communal pride, and they encourage the development of useful hobbies such as gardening and the keeping of fowls. Planning of this nature is no less urgent in Australia.

Our investigation brings to light the fact that, even in a country so well endowed with primary produce as Australia, there are a number of old people who, for a variety of reasons, are suffering from minor grades of malnourishment. Substandard housing with poor cooking facilities and faulty eating habits were the most significant ætiological factors. There is a need for some objective information on the dietary needs of old people. Are their daily requirements of proteins and vitamins less than those for persons in the prime of life? There is certainly the need for teaching old people about the correct foods to eat.

The psychiatric aspects of aging have received scant attention. Querulousness and apathy, restricted mental activity and diminished capacity for self-care are symptoms thought to be due to progressive senile dementia; but it is just as likely that they are often caused by the hopeless, unsympathetic and frustrating environment in which not a few old people are condemned to drag out the last years of their lives. Active interests and social contacts are essential in preserving a cheerful outlook. The wise man plans his retirement well ahead of the event and finds a new pleasure in the enjoyment of his leisure when it comes. In this respect the general practitioner is probably best equipped to practise "prophylactic psychiatry" by discussing with his middle-aged patients the correct psychological approach to old age and retirement.

Sooner or later, retirement from active work must be faced by a man; but at what age should this take place? Probably the statistical mean could well be raised above sixty-five years, which is, after all, only a figure of administrative convenience. In American industry, personnel managers are experimenting with schemes for providing lighter alternative work for employees aged over sixty-five years. The fact that some of our patients expressed a desire to continue working after sixty-five years, and indeed some were still working at seventy years, leads us to suppose that statisticians and employers in this country could give this matter their attention, particularly as there seemed no valid reason on physical or mental grounds why the wishes of patients should not be met.

The object of this work has been to examine the many interwoven factors involved in the study of old age. The ultimate purpose of medicine is to contribute to the health and happiness of man at all ages; with particular respect to old people we are required to think in terms not only of signs and symptoms, but also of population statistics, of housing, of hospital administrative problems, of dietetics and of the rudiments of psychiatry. In fact, we may say that practice among elderly patients is an object lesson in social medicine.

Summary and Conclusions.

1. Statistical evidence, derived from actuarial sources, of the aging structure of the Australian population is presented.

2. The response to treatment of 40 female and 30 male patients aged over sixty-five years attending the out-patient department of the Clinical Research Unit, Royal Melbourne Hospital, has been analysed, and an investigation into their social and nutritional status has been undertaken.

3. Most patients presented with gastro-enterological complaints, the main subject of investigation by the unit; in addition there was the expected incidence of the degenerative diseases of old age.

4. The results of both medical and surgical treatment were highly encouraging. Experience showed that patients with advanced arteriosclerosis or osteoarthritis could, with careful treatment, be guided to lead happy and useful lives, and that in expert hands old people withstood major surgical procedures surprisingly well.

5. Although the majority of patients was found to have adequate finances, in some cases the existence of minor grades of poverty was brought to light. High costs of food, fuel and rent were an embarrassment to patients whose sole source of income was the old age pension. Some others not receiving the pension were likewise embarrassed.

6. Approximately one-quarter of the patients were experiencing housing difficulties. There are indications that this threatens to become a national problem. The building of two-room "flatlets" or maisonettes for old people is recommended.

7. A small proportion of patients was found to be suffering from poor nutrition. Although in some instances poverty was a material cause, more often faulty food habits could be incriminated; this indicates a need for instructional education among old people.

8. The care of old people calls for our close attention. They respond well to efficient and energetic treatment, and the fact that many patients continued to do useful work in their seventies should remind us that it is never justifiable to relegate human lives—like motor-cars—to the scrap heap.

Acknowledgements.

We are deeply indebted to Mr. Huntley G. Walker, Fellow of the Actuarial Society of Australasia, for his stimulating interest in this work, and for providing the valuable information shown in Tables II and III. We should also like to acknowledge our indebtedness to our surgical colleagues, Mr. Julian Orm Smith and Mr. Grayton Brown, who have performed the bulk of the surgical procedures on our patients, and to the physicians and surgeons at the Royal Melbourne Hospital who have referred patients for investigation.

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EXCHANGE TRANSFUSION AND TRANSFUSION IN INFANTS AND YOUNG CHILDREN.

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THE treatment of *erythroblastosis fœtalis* by exchange transfusion has been carried out by many workers since the operation was first performed by Wallerstein (1946) as a rational form of treatment in this condition. Various methods of performing exchange transfusion have been described, but in spite of this no worker has described a means of determining what quantity of blood should be administered to a particular baby in order to effect an optimum exchange, or what percentage of a particular baby's blood has been exchanged in a given transfusion. While most transfusions are beneficial it is essential to know these facts in order to assess the results of treatment.

It is the purpose of this article to describe the method and the simple apparatus which we use, both for exchange transfusion of erythroblastotic infants and also for scalp and hand transfusions in infants and young children in the Brisbane Women's Hospital and the Brisbane Children's Hospital. The apparatus is much simpler than any that has been described and is easy to manipulate. The method of determining how much blood a particular infant should receive has not been described previously.

The accompanying diagram (Figure I) depicts the baby transfusion set. *ABC* is a glass *Y* piece. The arm *A* fits the rubber tubing of the hospital transfusion giving set. The tapered arms *B* and *C* fit firmly into the plastic catheters *DE* and *IJ*. These plastic catheters are two-millimetre English "Portex" manufactured by Portland Plastics, Limited, London. Each catheter is six or seven inches long. "Portex" is transparent and fairly rigid, and can be sterilized by boiling or autoclaving. A pipe cleaner can be passed up two-millimetre catheter tubing to clean it; it fits the nozzle of a "Record" syringe and can thus be easily syringed through. After being autoclaved five to six times "Portex" loses its elasticity and turns a brownish colour; it is then discarded. The apparatus cannot be assembled prior to autoclaving, as the "Portex" splits at the connexions if this is done. The five parts of the set are therefore sterilized (autoclaved), separated from each other in the same wrapper and assembled when required.

FGH is an electroplated brass adapter, the dimensions of which are shown in the diagram. The hole *F* is wide enough for the plastic catheter to pass through. The nozzles *G* and *H* are each the same size as the nozzle of a "Record" syringe onto which the "Portex" catheter fits firmly. The adapters are made for me by Taylors and Elliotts, Proprietary, Limited. *K* is a gauge 12 needle, "Record" fitting; the point is blunted, and when it is passed into *J* it forms a convenient adapter catheter to the syringe.

When it is desired to use the apparatus for exchange transfusion via the cord, the catheters are fitted to the narrow arms of the glass piece and the needle *K* is inserted into the end *J* of the catheter *JI*. The adapter *FGH* is not

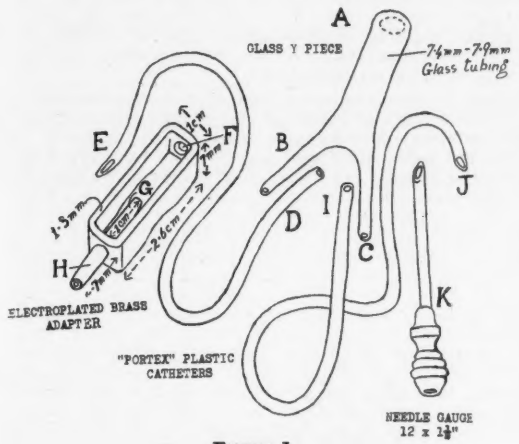

FIGURE I.
Baby blood transfusion set.

used. The hospital transfusion set with bottle attached is fitted to the arm *A*. Blood is allowed to flow as far as the junction of *AB* and *C* and a Spencer Wells forceps is applied just above *A* to the rubber tubing. A 20-millilitre all-glass or "Record" syringe filled with 3·8% sodium citrate solution is fitted to *K*, and the catheters are flushed with the solution. A mosquito forceps is applied to the catheter *DE* close to *D*. The set is now ready for use. The catheters at this stage contain 3·8% sodium citrate solution.

The catheter can be inserted into the umbilical vein without assistance if the following method is used. The infant's cord is delivered through a two-inch slit in a dressing towel. It is then swabbed with 1 in 10 "Zephiran" solution and cut across about one inch from the umbilicus. The cut surface is swabbed with sodium citrate (3·8%) solution, and the umbilical arteries and the umbilical vein are identified. The stump of the umbilical cord is then held between the third and fourth fingers of the left hand, and the two mosquito forceps are applied to the upper and lower walls of the vein, one blade of each forceps being inside the vein as in the diagram (Figure II).

The upper forceps is held with the finger and thumb of the left hand, and slight traction on this forceps against the weight of the lower forceps holds the vein open. The catheter is passed between the blades of the mosquito forceps and passes up the vein easily despite its size. When the tip of the catheter has been passed beyond the umbilicus, difficulty is sometimes experienced in introducing it further at the point where the umbilical vein makes a right angle bend upwards. Traction on the cord in a caudal direction assists the passage of the catheter at this stage. A probe may be passed up the umbilical vein to just beyond the umbilicus in order to dilate it, if there is any difficulty in passing the catheter beyond this point. When the catheter has been passed beyond the umbilicus the mosquito forceps on the catheter is released and the catheter is advanced until blood is "tapped" and flows into the syringe. Ten to twenty millilitres of blood are first withdrawn, the mosquito forceps is reapplied, the syringe is detached and the blood is discarded into a graduated 500-millilitre cylinder. The syringe is then fitted to the needle *K*, the Spencer Wells forceps is released and blood is drawn from the bottle into the syringe. The Spencer Wells forceps is then reapplied, the mosquito forceps is released and the blood is injected into the baby. By this procedure blood is withdrawn and injected in equal amounts of 10 to 20 millilitres until the infant has had the amount of blood calculated to give a 90% exchange. At this stage 40 to 60 millilitres of blood (10 millilitres per pound of body weight) are injected slowly into the infant. This is meant as a substitute for the placental blood, and also as replacement for the 8% to 10% of baby's blood cells which are not removed and which will be hæmolyzed in the next few days, as in all our expected "Rh babies" the cord is clamped immediately after the baby has been born, and the baby is thus deprived of that quantity of blood it would otherwise have received from its placenta. All infants (for the most part delivered after induction of premature labour) are given oxygen continuously during the transfusion and for the first twelve to twenty-four hours afterwards; during the latter period "Carbogen" is administered for five minutes in every hour. In addition each receives 5000 units of penicillin by injection every three hours for five days. The penicillin is probably quite unnecessary, as an aseptic technique with the use of gloves is employed for the exchange, but it does no harm.

Occasionally false passages are encountered in the course of the umbilical vein; they probably represent remnants of other vessels which were joined to the umbilical vein. These false passages are a source of difficulty when the catheter is being introduced. Should they be encountered,

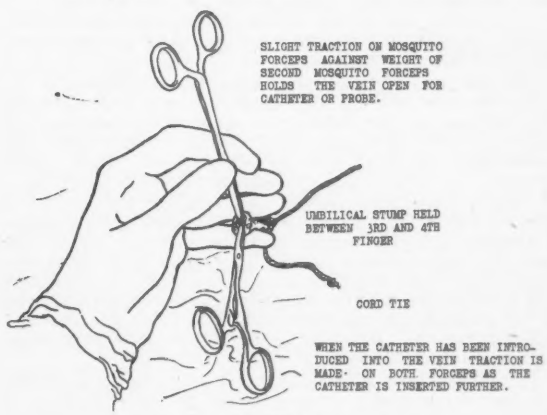
SLIGHT TRACTION ON MOSQUITO FORCEPS AGAINST WEIGHT OF SECOND MOSQUITO FORCEPS HOLDS THE VEIN OPEN FOR CATHETER OR PROBE.
UMBILICAL STUMP HELD BETWEEN 3RD AND 4TH FINGER
CORD TIE
WHEN THE CATHETER HAS BEEN INTRODUCED INTO THE VEIN TRACTION IS MADE ON BOTH FORCEPS AS THE CATHETER IS INSERTED FURTHER.

FIGURE II.
Method of holding umbilical vein to insert catheter.

it is best to cut the umbilical vein off flush with the skin and to suture the skin when the transfusion has been completed. I have encountered false passages on three occasions during 70 transfusions, and have had to suture the skin (after effecting hæmostasis) on two occasions.

Sometimes blood clots are present in the umbilical vein when the catheter is first introduced, and are sucked into it when the transfusion is commenced. As they are a source of danger to the infant, blood is not injected until all clots have been sucked out and the passage is shown to be clear by a free flow of blood into the syringe. The tendency to clot formation in the apparatus is greatly reduced by attempting to keep it full of citrated blood for the greater period of the transfusion; in order to effect this blood is withdrawn rapidly from the baby and discarded, the syringe is filled rapidly from the bottle and the first few millilitres are injected rapidly.

The blood is not warmed. It requires approximately 15 Calories to heat 500 millilitres of blood from 7° to 37° C.

TABLE I.

Name.	Coombs Test Result.	Blood Group.	Weight.	Amount of Blood Injected. (Millilitres.)	Amount of Blood Withdrawn. (Millilitres.)	Type of Blood Used.	Time Taken.	Remarks.
J.E.	Positive.	A. Rh-positive.	8 lb. 12 oz.	890	820	A. Rh-negative.	Two and three-quarter hours.	Liver and spleen enlarged. Delivered after induced premature labour. No subsequent transfusion given.
McGr.	Positive.	O. Rh-positive.	8 lb. 9 oz.	1145	970	O. Rh-negative.	One and three-quarter hours.	One week premature.
I.E.	Positive.	A. Rh-positive.	7 lb. 6 oz.	705	660	A. Rh-negative.	One and a half hours.	Liver and spleen enlarged. Delivered after induced premature labour. No subsequent transfusion given.

This is less than the amount of energy supplied by one ounce of milk. Infants (even premature infants) tolerate transfusion with cold (stored) blood very well. The method therefore differs only in detail from that described by Diamond. One operator and one nurse only are required for the operation. The nurse controls the baby, administers oxygen and keeps a tally of the amounts withdrawn and injected. A cord tied around the umbilical cord holds the catheter in place.

The infant is most easily immobilized by being laid on a well-padded aluminium leg splint with its legs and thighs bandaged to the splint. The splint in turn rests on hot water bottles.

Pharyngeal mucus probably constitutes the greatest danger during an exchange transfusion. Some infants, even severely affected infants, remain asleep during the transfusion and the operation is uneventful. Other infants salivate continuously, and the collection of mucus in the pharynx constitutes a menace to the life of the infant. It is remarkable how easily infants suffer from shock when mucus collects in the pharynx, and how rapidly they recover when it is sucked out.

The first sign of infantile distress is a darkening in the colour of blood in the glass *Y* piece. This is noticed before any increase in respiratory rate or grunty breathing and cyanosis. Infants given oxygen continuously during the transfusion tolerate the procedure better than other infants, and their cord blood does not become cyanotic.

I do not use heparin, as recommended by Dr. A. S. Wiener. Five infants with *erythroblastosis fœtalis* whom I treated, and for whom heparin was not used, had petechial hæmorrhages in the skin prior to transfusion. One infant who died had a large subdural hæmorrhage, and another had a hæmorrhage into the mucous membrane of the stomach. Large amounts of blood can be exchanged without heparin. Relevant notes of three successful cases are as shown in Table I.

In two babies whom I treated the cord was not available (it was thrombosed). The infants were therefore given exchange transfusions by the radial artery and internal saphenous vein method of Dr. A. S. Wiener, except that no heparin was used. Relevant notes of these two babies are as shown in Table II.

Blood from the infant's radial artery was directed into a graduated flask; as each amount of 10 millilitres was obtained from the radial artery an equivalent amount was injected by syringe into an internal saphenous vein. This is more exact than counting drops of blood, as drops vary in size with the rate of flow and with the smoothness and the area of the surface from which they drop. This method naturally requires another operator, it is inclined to be messy and it deprives one of the pleasure of presenting the parents with an unmarked baby.

I have given one baby a transfusion via the cord eighteen hours after birth and another eleven hours after birth. No difficulty was experienced in inserting the catheter. The babies did well. Mollinson and Cutbush have given transfusions to at least one infant thirty-eight hours after birth via the cord.

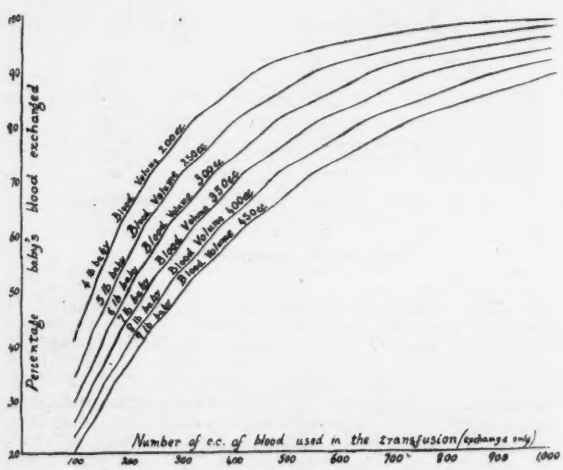

FIGURE III.

Percentage of baby's blood exchanged.

I use one syringe only, and I have known the glass plunger to stick in the barrel of the syringe on one occasion only. Sticking of the plunger in the barrel of the syringe occurs more as a result of drying of the blood on the outside of the plunger, probably because of its large surface area, than by actual clotting, and should be prevented and not cured. It does not occur if after every sixth or seventh quantity of blood has been injected the glass plunger is immersed in 3·8% sodium citrate solution. Heparin is unnecessary for rinsing the syringe.

Simplicity of apparatus and simplicity of technique should be the keynotes in transfusion. A multiplicity of component parts does not lead to efficiency, but the reverse.

TABLE II.

Name.	Coombs Test Result.	Blood Group.	Weight.	Amount of Blood Injected. (Millilitres.)	Amount of Blood Withdrawn. (Millilitres.)	Type of Blood Used.	Time Taken.	Remarks.
M.A.H.	Positive.	O. Rh-positive.	9 lb. 7 oz.	500	465	O. Rh-negative.	One and a half hours.	Both sent in many hours after birth. Each baby required one transfusion later because of low hæmoglobin value.
M.T.	Positive.	O. Rh-positive.	7 lb. 2 oz.	510	440	O. Rh-negative.	One and a half hours.	

TABLE III.

Showing Percentage of Exchange Effected when Babies with Blood Volumes Ranging from 200 to 450 Millilitres are Transfused with Volumes of Blood Ranging from 100 to 1000 Millilitres in One, 10 and 20 Millilitre Amounts.

Total Volume of Blood for the Exchange of: (Millilitres.)	4-Pound Baby. Blood Volume of 200 Millilitres.				5-Pound Baby. Blood Volume of 250 Millilitres.				6-Pound Baby. Blood Volume of 300 Millilitres.				7-Pound Baby. Blood Volume of 350 Millilitres.				8-Pound Baby. Blood Volume of 400 Millilitres.				9-Pound Baby. Blood Volume of 450 Millilitres.			
	1 Millilitre.	10 Millilitres.	20 Millilitres.	Mean.	1 Millilitre.	10 Millilitres.	20 Millilitres.	Mean.	1 Millilitre.	10 Millilitres.	20 Millilitres.	Mean.	1 Millilitre.	10 Millilitres.	20 Millilitres.	Mean.	1 Millilitre.	10 Millilitres.	20 Millilitres.	Mean.	1 Millilitre.	10 Millilitres.	20 Millilitres.	Mean.
100	39·7	40·2	41·0	40·3	32·4	33·5	34·1	33·3	27·6	29·2	29·2	28·7	25·0	25·2	25·8	25·3	22·4	22·4	22·6	22·5	19·6	20·1	20·3	20·0
200	63·7	64·2	65·2	64·4	54·3	55·7	56·6	55·5	47·5	50·0	50·0	49·2	43·8	44·0	44·9	44·2	39·7	39·7	40·2	39·9	35·4	36·5	36·5	36·0
300	78·1	78·6	79·4	78·7	69·1	70·7	71·3	70·4	62·0	64·5	64·5	63·7	57·8	58·1	59·1	58·3	53·2	53·2	53·7	53·4	48·1	48·8	49·4	48·8
400	86·8	87·2	87·5	87·2	79·1	80·4	81·1	80·2	72·6	74·9	74·9	74·1	68·0	68·7	69·7	68·8	63·7	63·7	64·2	63·9	58·8	59·3	59·7	59·2
500	92·1	92·3	92·8	92·6	85·0	87·0	87·6	86·5	80·1	82·2	82·2	81·5	76·2	76·6	77·5	76·8	71·8	71·8	72·3	72·0	66·5	67·7	67·9	67·4
600	95·2	95·4	95·8	95·7	90·5	91·3	91·8	91·2	85·5	87·4	87·4	86·8	82·2	82·5	83·3	82·6	78·1	78·1	78·6	78·3	73·0	74·0	74·4	73·8
700	97·1	97·3	97·5	97·3	93·5	94·2	94·6	94·1	89·5	91·1	91·1	90·6	86·6	86·9	87·6	87·0	83·0	83·0	83·4	83·1	78·3	79·2	79·6	79·0
800	98·3	98·4	98·5	98·4	95·6	96·2	96·4	96·1	92·4	93·7	93·7	93·3	90·0	90·2	90·8	90·3	86·8	86·8	87·2	86·9	82·6	83·4	83·8	83·3
900	99·0	99·0	99·1	99·0	97·0	97·5	97·7	97·4	94·5	95·5	95·5	95·1	92·5	92·7	93·2	92·8	89·8	89·8	90·1	89·9	86·0	86·7	87·1	86·6
1000	99·4	99·4	99·5	99·3	98·0	98·3	98·5	98·2	96·0	96·8	96·8	96·5	94·3	94·5	94·9	94·6	92·1	92·1	92·3	92·2	88·9	89·4	89·8	89·4

It is preferable not to have movable parts (three-way stopcocks) which are liable to become sticky or loose, or present problems in cleaning. Clamping the catheter with mosquito forceps does the tubing no harm. The narrow arms of the Y tube eliminate dead space and ensure a better exchange. We do not use a side arm to discard the blood, because it necessitates three other components in the set. It entails more joints to the apparatus, it requires syringing to keep it from becoming clogged and possibly increases the amount of blood in the set which does not take part in the exchange.

As the catheter is introduced with the set assembled, the danger of air embolism is eliminated.

I have used calcium gluconate once only, because I have not seen any indication for its use.

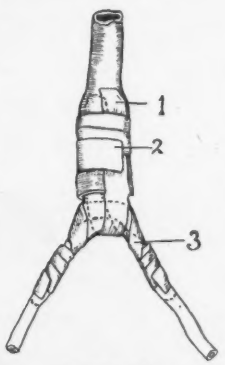

FIGURE IV.

Method of fastening rubber tubing of transfusion set and plaster catheters to glass Y-piece with three strips of adhesive plaster (1, 2, 3).

Efficiency of Exchanges.

Wasserman and Sharney and Wallerstein and Brodie have made excellent presentations of the points to be considered in estimating the percentage of exchange effected in any given exchange transfusion. It is clear, however, that some attempt should be made to evolve from the wealth of mathematical data presented a sound practical method of estimating the amount of blood required for a particular baby in order to effect an optimum exchange, or to estimate the percentage of blood exchanged in any transfusion. In the vast majority of exchange transfusions a quantity of blood is first withdrawn from the baby and then an equal quantity of blood is injected. This process is then repeated until a sufficient exchange of baby's blood has been effected, the baby's blood volume remaining fairly constant during the process. The percentage of baby's blood remaining in its circulation at any time during the transfusion is given by the following equation:

$$P = 100\left(\frac{V-a}{V}\right)^n$$

Where P = percentage of baby's blood remaining in its circulation, V millilitres = volume of baby's blood at beginning of transfusion, a millilitres = amount of blood withdrawn (and replaced) each time, n = number of times a millilitres are withdrawn and replaced. The percentage of exchange effected = $100 - P$.

There is a small quantity of blood in the apparatus which does not enter into the exchange at all. The volume of this blood $= \frac{22}{7} \times \frac{1}{1} \times \frac{30}{1} \times \frac{10}{1}$ cubic millimetres = 943 cubic millimetres, if the total length of the column of blood in the apparatus is 30 centimetres and the diameter of the tubing is two millimetres.

If blood is exchanged in 10 millilitre amounts, then for each 100 millilitre quantity of blood used in the exchange 0·943 millilitre × 10 = 9·43 millilitres would not enter into the exchange. If the blood is exchanged in 20-millilitre amounts, 0·943 millilitre × 5 = 4·72 millilitres would not enter into the exchange per 100 millilitres of blood used. In practice, blood is exchanged in 15 millilitre to 20 millilitre quantities because infants tolerate these quantities, so that between 24 and 47 millilitres of blood per 500 millilitres of blood used for the exchange do not take part in the exchange transfusion.

Using the foregoing formula and four-figure logarithmic tables, I have worked out the percentage of exchange effected when baby's blood volumes ranging from 200 to 450 millilitres are transfused in one, ten and 20 millilitre amounts with volumes of blood ranging from 100 to 1000 millilitres, and the figures obtained are presented in Table III. The quantities of blood in the tubes of the apparatus have been omitted from the calculation. A study of this table reveals the following facts:

1. The difference in percentage of exchange effected when blood is transfused in one, 10 and 20 millilitre amounts is very little. A slightly better exchange is obtained with 20 millilitre than with 10 millilitre amounts and with 10 millilitre than with one millilitre amounts, but the advantage is not significant. It is nevertheless preferable to perform the transfusion in 15 to 20 millilitre amounts because less time is wasted, the amounts exchanged are measured more accurately and infants easily tolerate these quantities.

2. When twice the baby's blood volume is transfused, the percentage of exchange varies from a mean value of 86·6% (with the 450 millilitre blood volume) to 87·2% with a 200 millilitre blood volume; that is, the amount of blood

exchanged is of much greater significance than the number of millilitres of blood withdrawn and injected each time.

3. If the baby's blood volume is taken as being 50 millilitres per pound of body weight, a five pound baby requires 600 millilitres to effect a 90% exchange, a six pound baby requires 700 millilitres, and so on—that is, one more in hundreds than its weight in pounds. This is the quantity of blood actually required for the exchange; a further quantity, approximately 10 millilitres per pound of body weight, is injected after the exchange to make up for the loss of placental blood, as mentioned above.

4. If the weight of the baby and the amount of blood used in the exchange are known, the percentage of exchange effected can be estimated to within 1·5% from the table or the graph constructed from it (Figure III and Table III). In the use of either graph or table, 10 millilitres per 100 millilitres of blood exchanged in 10 millilitre amounts and five millilitres per 100 millilitres of blood exchanged in 20 millilitre amounts must be subtracted from the total amount exchanged in order to make allowances for the quantity of blood in the set which does not enter into the exchange.

The percentage of blood exchanged may also be read from Figure III, which has been constructed from the mean values obtained from the 10 and 20 millilitre exchanges.

The graph may also be used to indicate what quantity of blood a baby of known weight should receive in order that a 90% exchange may be effected.

If the infant is very anæmic when born (hæmoglobin value below 50%), it is wise to begin the transfusion by first injecting 20 millilitres of blood and then continuing the exchange. The percentage of baby's blood in its circulation at any one time is then given by the following equation:

$$P = 100\left(\frac{V}{V+a}\right)^n$$

Tables for this formula have not been worked out because the information can be obtained from those worked out for the formula $P = 100\left(\frac{V-a}{V}\right)^n$ and from the graph constructed from it; if it is remembered that the volume of blood V now being transfused is equal to the baby's blood volume *plus* the amount injected before the exchange was commenced. Example: Suppose a baby with a blood volume of 350 millilitres is given an exchange transfusion with 600 millilitres of blood in 20 millilitre amounts, by reference to the chart the amount of blood exchanged is 83·3%.

If, however, 50 millilitres of blood are first injected, making a total blood volume of (350 + 50) = 400 millilitres, and the baby is now given an exchange transfusion with 600 millilitres of blood (that is, a total of 650 millilitres of blood is used), then in this case 400 millilitres of blood have been exchanged with 600 millilitres of blood, the exchange value (by reference to the table) being therefore 78·6%; that is, 78·6% of the baby's blood has been exchanged and 78·6% of the 50 millilitres of blood initially injected have also been exchanged, the baby's blood volume remaining at 400 millilitres. The exchange is of course less perfect, but is somewhat counterbalanced by the fact that as the baby's hæmoglobin value is low there are less red cells to exchange.

The blood used for the exchange is of the same Rh group as that of the mother and the same ABO Group as that of the infant. If the mother's cells are found to be D negative, the infant receives blood which is C, D and E negative. On the infrequent occasions when this was not observed, group O Rh-negative blood has given equally good results with babies of group A or B Rh-positive. Donor blood used contains no anti-Rh antibodies. I prefer to use blood not more than five days old because of the longer survival time of the red cells, particularly as the blood has always been ready to hand. Male and female blood is used impartially. Blood is obtained from the Queensland Red Cross Blood Transfusion Service. Four hundred and fifty millilitres of blood are prevented from coagulating by the addition of 75 millilitres of a solution containing 2·2% trisodium citrate (dihydric), 0·8% citric acid (monohydric) and 2·45% dextrose anhydrous. The anticoagulant formerly used contained 3·8% trisodium citrate, 0·36% citric acid and 3·7% dextrose. Both solutions give equally good clinical results.

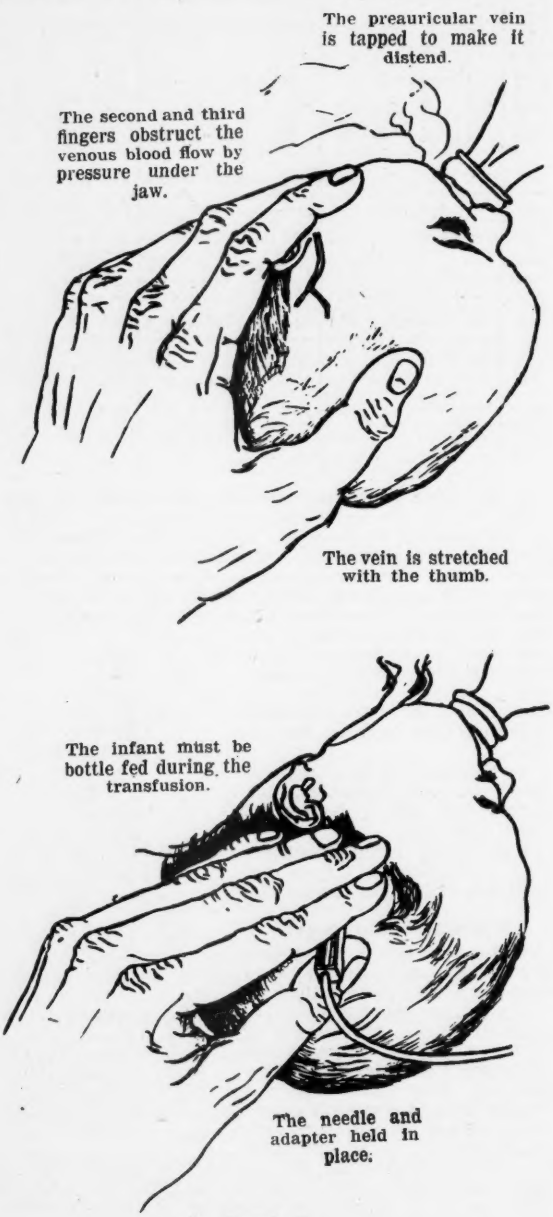
The preauricular vein is tapped to make it distend.
The second and third fingers obstruct the venous blood flow by pressure under the jaw.
The vein is stretched with the thumb.
The infant must be bottle fed during the transfusion.
The needle and adapter held in place.

FIGURE V.
Scalp vein transfusion.

It is the rule in this hospital to regard an unfavourable maternal history or a rising or a high maternal anti-Rh blocking antibody titre as indications for the induction of labour at approximately thirty-six weeks. The viability of the fœtus assessed clinically by its size and activity is taken into consideration in deciding the time when labour should be induced in addition to the maternal history and antibody titre. Routine tests—the cord blood hæmoglobin

estimation, determination of the blood group and the direct Coombs test—are performed on the infant when it is born, and provided that the Coombs test result is positive, the transfusion is commenced within three quarters of an hour from the time of birth, (i) because it is impossible to decide which babies will develop kernicterus, (ii) because the clinical course of babies given transfusions is generally uneventful, (iii) because the operation itself has little risk.

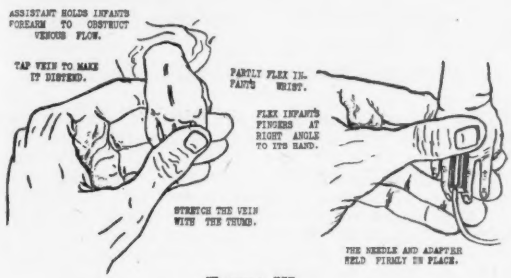
ASSISTANT HOLDS INFANT'S FOREARM TO OBSTRUCT VENOUS FLOW.
TAP VEIN TO MAKE IT DISTEND.
GENTLY FLEX INFANT'S WRIST.
FLEX INFANT'S FINGERS AT RIGHT ANGLE TO ITS HAND.
STRETCH THE VEIN WITH THE THUMB.
THE NEEDLE AND ADAPTER HELD FIRMLY IN PLACE.

FIGURE VI.
Transfusion in vein in back of infant's hand.

There are undoubtedly some infants in whom the Coombs test result is positive who would survive without an exchange transfusion. Some of these become very anæmic, and most of them subsequently require two to four blood transfusions in order to maintain their hæmoglobin value at a normal level.

Scalp Transfusions.

When the apparatus is used for scalp transfusion, the catheters, the *Y* tube and the transfusion giving set are assembled as before. A Spencer Wells forceps is applied to the rubber tube above *A*. The end *E* of the catheter passes through a hole *F* of the adapter and on to the nozzle *G*. This manœuvre is simplified by the use of a mosquito

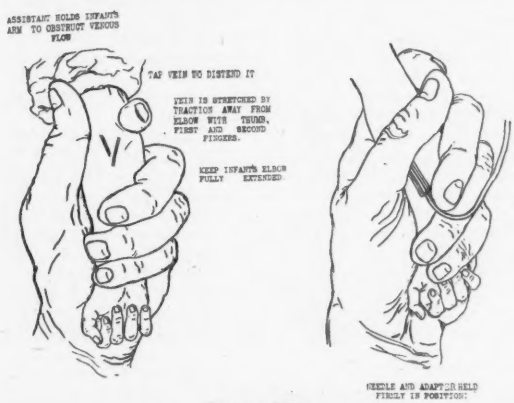
ASSISTANT HOLDS INFANT'S ARM TO OBSTRUCT VENOUS FLOW
TAP VEIN TO DISTEND IT
VEIN IS STRETCHED BY TRACTION AWAY FROM ELBOW WITH THUMB, FIRST AND SECOND FINGERS.
KEEP INFANT'S ELBOW FULLY EXTENDED.
NEEDLE AND ADAPTER HELD FIRMLY IN POSITION.

FIGURE VII.
Cubital vein transfusion.

forceps to push the tip *E* of the catheter onto the nozzle *G* after it has been passed through the hole *F*. *K* is discarded. A 20 millilitre "Record" syringe filled with 3·8% sodium citrate solution is connected directly to the tip *J* of the catheter, and the catheter is flushed with the solution. A mosquito forceps is then applied to *DE* close to *D*, the Spencer Wells forceps is released and the syringe is filled with blood. The Spencer Wells forceps is then reapplied. The catheter *DE* and adapter are, of course, full of 3·8% sodium citrate solution. A great deal of pressure is generated in the apparatus during injection of blood. The joints of the apparatus at *A*, *B* and *C* are therefore reinforced with strips of zinc oxide plaster one quarter to one third of an inch in width, in order to prevent the tubing from swelling off the glass as in Figure IV. The set is now ready for use.

For scalp transfusion the infant is laid on its side and the hair of its head just above and in front of the ear is shaved if necessary. The preauricular vein is generally easily visible. The skin is prepared with ether or alcohol. Pressure with the fingers of the left hand under the mandible obstructs the flow of blood and the preauricular vein distends. The left thumb is then used to stretch the vein and fix it. Now the needle attached to the adapter is introduced, bevel up, into and along the vein for about four millimetres and is held in place against the side of the infant's head by means of the left hand. The mosquito forceps is removed and blood is drawn into the plastic catheter, where it is clearly visible, thus proving entry into the vein. The blood is then injected with the syringe. It is not necessary to clamp the plastic tubing *DE* when blood is drawn into the syringe, as a negligible quantity of blood enters the catheter from the vein when the syringe is filled. Some time during the venepuncture the infant cries. This only helps to distend the veins further and assists venepuncture. When the vein has been entered the infant is bottle-fed and then loses interest in the transfusion and is generally asleep by the time it is completed. Older infants or small children are given sedation prior to transfusion. A local anæsthetic is not used. The sedative used is potassium bromide (five grains), syrup of orange (five minims) in one drachm of chloroform water. One drachm per year of age is given about half an hour prior to the transfusion.

All infants and small children have veins on the backs of the hands or in the cubital fossæ where venepuncture can be performed fairly easily if the scalp veins appear difficult. Provided a sharp needle is used, any vein may be entered if it is first distended, stretched and fixed. It is important that the needles be really sharp. Any degree of technical skill can be set at naught by a blunt needle.

The apparatus requires about five to ten minutes to assemble, and the method requires one operator and one assistant only. Hypodermic needles, size 16 to 12, about three quarters of an inch to one inch long with the bevels shortened to about 1·5 millimetres and nicely sharpened, are best. Size 18, 19 or 20 is suitable for smaller veins. If the bottle of blood is inverted slowly, the viscous mass of red cells gravitates to the bottom with little admixture of plasma, and the infant is thus given a transfusion of concentrated red cells. Two hundred millilitres of blood can be injected through a size 16 subcutaneous needle in about half an hour.

I have performed 60 transfusions and over 100 scalp and hand transfusions with this apparatus, using it in the manner described; however, the latter transfusions are generally performed by the resident medical officers in charge of their own patients.

Acknowledgements.

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OBSERVATIONS ON LEPTOSPIROSIS IN VICTORIA.

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LEPTOSPIROSIS has been shown to be an endemic disease amongst dairy farm workers in East Gippsland, where swine are considered to be the important reservoir of infection with cattle as a smaller reservoir (Wellington, Stevenson and Ferris, 1951). These authors also found an infection rate of 13% for *Leptospira pomona* amongst abattoir and bacon factory workers in various Victorian country centres, whilst those persons whose work involved the handling of pigs showed the highest incidence of infection.

Further investigations on leptospirosis in Victoria are described in this report. Three main lines of approach have been followed. The course of the disease amongst animals and dairy farm workers in Gippsland has been observed; serological studies of abattoir workers in the Melbourne metropolitan area have been pursued; and tests for leptospirosis have been performed on a series of patients with aseptic meningitis, of whom the majority were admitted to Fairfield Hospital, Melbourne.

[1] Assisted by a grant from the National Health and Medical Research Council.

Leptospirosis in East Gippsland.

Lane (1952) has noted that, in the past, clinical infection in dairy farm workers in the Orbost area has tended to appear shortly after severe floods. However, although some of the worst floods for many years have recently occurred in this district, no clinical leptospiral infections have been reported. A low incidence of this disease amongst cattle has also been observed over the past twelve months. It is of interest to note, however, that two strains of *Leptospira pomona*, and one strain of *Leptospira mitis*, have been isolated from healthy Gippsland swine over this quiescent period.

Serological Survey on Metropolitan Abattoir Workers.

A total of 422 sera from abattoir workers have been tested for leptospiral antibodies by means of the agglutination test. Each serum was tested with six leptospiral strains—*Leptospira icterohæmorrhagiæ*, *Leptospira pomona*, *Leptospira australis* A, *Leptospira australis* B, *Leptospira mitis* and *Leptospira canicola*. The lowest serum dilution tested was one in 40. In previous tests of country abattoir workers a one in 20 final serum dilution was tested. The results are given in Table I.

On analysis it was found that persons such as slaughtermen, offal workers and butchers had the highest percentage of positive reactions. Slaughtermen handling pigs all or part of their time, as would be expected, showed a high incidence of infection. These findings are in accordance with the results in country abattoir workers (Wellington, Stevenson and Ferris, 1951).

Leptospiral Meningitis.

Since evidence of meningeal irritation may be the predominant clinical manifestation of leptospirosis, it was decided to carry out a serological screening of cases of aseptic meningitis. Serum specimens were therefore collected from patients admitted to Fairfield Hospital with the neck and spine stiffness syndrome. The series was amplified by sera from patients in other hospitals suspected to be suffering from leptospirosis. Cases in which a definitive diagnosis of paralytic poliomyelitis or purulent meningitis had been made were not included in the series. A total of 247 sera from different patients were tested for leptospiral antibodies. Some serum specimens were obtained in the early acute phase of disease, when antibody may not have been developed, and in only 87 cases were additional follow-up specimens obtained.

Sera from 240 patients failed to react with any leptospiral strain in the lowest serum dilution tested (one in 40). Sera from seven patients reacted to one or more leptospiral strains, as shown in Table II.

Cases I, II and III were regarded as active *Leptospira pomona* infections, Case IV as a probable recent *Leptospira pomona* infection. Cases V, VI and VII were instances in which low titre antibody, to leptospiral strains not previously known in this State, appeared during the course of an illness. There is insufficient evidence to support a diagnosis of leptospiral disease in any of these three

TABLE I.
Serological Tests for Leptospirosis Amongst Metropolitan Abattoir Workers.

Number of Abattoir.	Number of Sera Tested.	Titres of One in 40 or Over.							Total Number of Sera with Titres of One in 40 or Over.
		Leptospira icterohæmorrhagiæ.	*Leptospira pomona.*	*Leptospira australis* A.	*Leptospira australis* B.	*Leptospira mitis.*	*Leptospira canicola.*	*Leptospira pomona* and *Leptospira mitis.*	
I	64	—	3	—	—	—	—	1	4
II	74	—	3	—	—	4	—	1	8
III	180	1	8	—	—	—	—	—	9
IV	69	—	2	—	—	2	—	2	6
V	23	—	1	—	—	—	—	1	2
VI	12	—	—	—	—	3	—	—	3
Totals ..	422	1	17	—	—	9	—	5	32 (7·6%)

TABLE II.
Patients with Aseptic Meningitis and Leptospiral Antibodies in their Serum.

Case Number and Serum Specimen.	Reciprocals of Titres.[1]						Remarks.
	Leptospira icterohæmorrhagiæ.	*Leptospira pomona.*	*Leptospira australis* A.	*Leptospira australis* B.	*Leptospira mitis.*	*Leptospira canicola.*	
Case I:							
First specimen ..	0	40	40	0	0	0	Condition diagnosed as *Leptospira pomona* meningitis.
Second specimen ..	0	1,280	80	0	0	0	
Third specimen ..	40	2,560	80	0	0	0	Contact with animals.
Fourth specimen ..	40	10,240	80	0	0	0	
Case II:							
First specimen ..	0	5,120	0	0	0	0	Condition diagnosed as *Leptospira pomona* meningitis.
Second specimen ..	40	40,960	40	0	0	0	
Third specimen ..	0	2,560	0	0	0	0	Slaughterman.
Case III:							
First specimen ..	0	640	0	0	0	0	Condition diagnosed as *Leptospira pomona* meningitis. *Leptospira pomona* isolated from urine.
Second specimen ..	0	160	0	0	0	0	Slaughterman.
Case IV:							
First specimen ..	0	320	0	0	0	0	Patient had varicella.
Second specimen ..	0	80	0	0	0	0	
Case V:							
First specimen ..	0	0	0	0	0	0	Ætiology obscure.
Second specimen ..	0	0	0	0	0	40	
Case VI:							
First specimen ..	0	0	0	0	0	0	Mumps complement fixation titre high and falling over the interval between examinations of the three serum specimens (two months).
Second specimen ..	0	0	40	0	0	0	
Third specimen ..	0	0	40	0	0	0	
Case VII:							
First specimen ..	0	0	0	0	0	0	Ætiology obscure.
Second specimen ..	0	0	0	160	0	0	

[1] "0", titre less than 40.

patients, one of whom was probably suffering from mumps meningo-encephalitis.

The cerebro-spinal fluid changes in the three definite cases varied somewhat. In Case I there were five lymphocytes per cubic millimetre with normal chemical findings. The patient in Case III, who was in Saint Vincent's Hospital under the care of Dr. John Billings, had cerebro-spinal fluid containing 900 cells per cubic millimetre, comprising 50% polymorphonuclear leucocytes and 50% lymphocytes. Case II was somewhat similar to Case III.

CASE II.—A slaughterman, aged thirty-three years, was admitted to Fairfield Hospital with a history of fever, headache and anorexia of five days' duration. Vomiting occurred over the first two days. On examination of the patient pronounced neck stiffness was present and Kernig's sign was elicited, but no other abnormality was noted. The temperature was 99° F., the pulse rate was 88 per minute and the respirations numbered 22 per minute. Lumbar puncture produced turbid cerebro-spinal fluid under slightly increased pressure; the cells numbered 1800 per cubic millimetre, 80% being polymorphonuclear leucocytes; the total protein content was 140 milligrammes per 100 millilitres, the chloride content was 710 milligrammes per 100 millilitres, and the sugar content was 40 to 50 milligrammes per 100 millilitres. Gram staining revealed no organisms and attempted culture on ordinary bacteriological media produced no growth of organisms. The leucocytes numbered 13,100 per cubic millimetre, with a polymorphonuclear preponderance. The antibody titre to *Leptospira pomona* on the tenth day of illness was one in 5120. The patient was afebrile in twenty-four hours and made a rapid recovery.

Whilst in hospital this slaughterman informed us that several of his workmates had suffered febrile illnesses about the same time. This information prompted an investigation at his place of employment, which was a small abattoir engaged in the slaughter of pigs and, to a lesser extent, calves. Three men had been off duty with fever, headache and muscle pains. All men received medical attention and returned fit for duty after periods of seven to fourteen days. One man was told that he may have suffered "a clot on the brain". The onset of illness for all four employees (including our patient) extended over a period of ten days.

Approximately two weeks after this episode had occurred, and whilst our patient was still in hospital, blood samples were taken, with cooperation from Dr. Forbes Mackenzie of the State Health Department, from all 21 employees at the abattoir and from 49 pigs slaughtered on that day. Five men, including the three recently returned to duty after illness, had serum titres to *Leptospira pomona* ranging from one in 320 to one in 2560. Two other men had titres of one in 40 to *Leptospira pomona*, and one man a titre of one in 640 to *Leptospira mitis*. Seven of the 49 swine sera had *Leptospira pomona* titres ranging from one in 1280 to one in 20,480; two other sera had titres of one in 80 to *Leptospira mitis* and one further serum had a titre of one in 80 to *Leptospira icterohæmorrhagiæ*.

Animals for slaughter had been purchased from the usual number of different country centres, and it was impossible to identify individual swine with their place of origin. It seems reasonable to suppose that an unusually large number of swine infected with *Leptospira pomona* were being slaughtered at this time, and that as a result four men suffered clinical leptospirosis and at least two others suffered subclinical illness. The man with a *Leptospira mitis* titre of one in 640 was a new employee, who entered the abattoir after the four men had become ill.

Discussion.

Human leptospirosis in Victoria appears to differ in no important respect from the disease as it occurs elsewhere. There is as yet no evidence that leptospires other than *Leptospira pomona* and *Leptospira mitis* are prevalent in Victoria.

The disease appears to be restricted to persons having contact with animals, of which swine probably form the most important reservoir of infection. Since clinical illness is usually of a nondescript character, the diagnosis will be missed unless the possibility of its occurrence is kept in mind and laboratory investigations are instituted. It would seem that a better awareness of this condition amongst medical men engaged in industrial practice, or in farming areas, might bring to light additional cases both in Victoria and in other States of the Commonwealth.

Although it is usual for patients to present with influenza-like symptoms, the possibility that meningeal signs may be the dominant clinical feature should be borne in mind (MacCallum and Broome, 1950). It has been reported that iridocyclitis may be a sequel to human infection, and that this also occurs in horses (Benson, Hankey and Cooper, 1951).

Summary.

1. *Leptospira mitis*, as well as *Leptospira pomona*, has been isolated in Victoria.

2. A serological survey of 422 Melbourne metropolitan abattoir workers gave evidence of infection with *Leptospira pomona* or *Leptospira mitis* in 7·6% of the men.

3. Three cases, and a possible fourth, of meningitis due to *Leptospira pomona* were diagnosed in Melbourne.

4. A small outbreak of leptospirosis in a city abattoir was investigated.

Acknowledgement.

We are grateful to Dr. E. V. Keogh for helpful advice and criticism.

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HYDATID DISEASE AT ROYAL HOBART HOSPITAL.

By K. J. FRIEND, M.B., B.S., D.R.,
AND
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Hobart.

THE purpose of this communication is to review briefly the admissions for hydatid disease to the Royal Hobart Hospital during the five-year period from 1947 to 1951 inclusive.

Many cases in the hospital records have been discarded because of insufficient proof, and of those retained 85 out of 89 were proven at operation or post-mortem examination. The remaining four cases were included in the series on the evidence of previous operations for hydatid disease and on X-ray appearances. One of these patients, while in hospital, coughed up hydatid membrane.

The cases have been analysed under various headings, and some discussion has been made on points of interest.

Age Incidence.

The youngest patient was aged four years and the oldest eighty-eight years. Grouped into decades, the age incidence is as shown by the following figures: one to ten years, 13 cases; eleven to twenty years, 16 cases; twenty-one to thirty years, 10 cases; thirty-one to forty years, 14 cases; forty-one to fifty years, 10 cases; fifty-one to sixty years, 10 cases; sixty-one to seventy years, 10 cases, seventy-one to eighty years, three cases; eighty-one to ninety years, three cases.

Site.

The involvement of various organs is as follows: lung, 43 cases; liver, 47 cases; peritoneum, five cases; kidney, two cases; subcutaneous tissues, two cases; spleen, one case; suprarenal gland, one case.

There are several factors contributing to the high lung incidence. (i) The presence of a hydatid cyst, even though it is small, is more readily ascertained when the lung is the affected organ. This is chiefly because of (*a*) the more rapid rate of growth, and (*b*) the earlier onset of complications in lung hydatid disease—for example, 10 patients presented with hæmoptysis. (ii) A patient with a known lung hydatid cyst may harbour a liver cyst which is impossible to detect, even at laparotomy.

Compared with the authoritative figures, the lung-liver ratio is high in our series of cases.

Multiple Infestation.

There were 14 instances of multiple sites (included in the foregoing figures), most commonly a combination of lung and liver. We found two patients with multiple lung cysts.

The lobar distribution of the total (43) lung cases is as follows: the right lung was affected in 26 cases—the upper lobe in seven, the middle lobe in three and the lower lobe in 16; the left lung was affected in 17 cases —the upper lobe in two and the lower lobe in 15.

The ratio of right lung to left lung of 26:17 approximates that given by Dew; but this authority states that the base of the right lung is affected twice as frequently as the base of the left lung—this is not the case in our small series.

It must be stated, too, that in four cases in which the lower lobe of the right lung was affected, mention was made of a pleuro-peritoneal communication through the right half of the diaphragm with evidence that the cyst had originated in the liver. However, these have been counted as cases of lung involvement, not liver involvement.

As regards site, the proportion of cysts in liver and lung were about equal, and the two together accounted for 90% of cysts. In the lung the most common site was at the bases, which were equally affected. Of the total lung cases, the right side was the more often involved.

Children.

In the category of children we have included patients aged up to and including fourteen years (21 subjects).

The distribution of cysts is as follows: lung, 13 cases; liver, six cases; lung and liver both, two cases; a total of 21 out of the series of 89 cases.

One patient, a boy aged five years, had three cysts, one each in the middle and lower lobes of the right lung and in the lower lobe of the left lung.

Of the total, the comparative figures for involvement of the lower lobes of the right and left lungs corresponded to the 2:1 relationship suggested by Dew.

Thus in children we found the following: (i) a high comparative incidence of infestation; (ii) a higher incidence of lung infestation compared with liver involvement; (iii) seven of the cysts in the liver; (iv) a great proportion of the lung cysts in the lower lobe of the right lung.

Habitation.

Satisfactory conclusions could not be drawn as to residence in country or city. The cities in Tasmania fade very quickly into grazing land, and patients who live in urban districts have ample opportunity to come in contact with country dogs. In one suburb of Hobart (Bellerive), from which many of our patients were derived, there has recently been a systematized programme of stray-dog extermination; this at least indicates that there were a lot of dogs.

Mass Radiography.

Since 1945 a programme of mass chest microradiography, including the examination of known contacts, has been in operation in Tasmania as part of the anti-tuberculosis campaign. This has been compulsory by law since January, 1951.

By this means 11 cases of pulmonary hydatid disease were detected; all the subjects were asymptomatic, and four of them were in the second decade.

As has previously been stated, our figures for lung and liver infestation were about equal, while the authorities

give a much higher liver incidence. The greater proportion of lung hydatid cysts in this hospital may in part be due to the influence of mass radiography. At least some of the eleven lung cases thus isolated would possibly not have come to light within the period 1947-1951 but for the routine taking of chest skiagrams.

Mode of Presentation.

In this section we have placed, in order of incidence, all presenting symptoms and the physical signs found which led to diagnosis.

1. Pain was present in 41 cases. It was the commonest symptom, varying from vague chest pain in patients harbouring a pulmonary cyst to the more definite pain of a ruptured intraabdominal hydatid cyst.

2. Tumour was present in 27 cases. It was the commonest sign, and in most cases was intraabdominal. There were two instances of subcutaneous cysts, one of them in an old operation scar. In one case the cyst presented in a hernial sac.

3. Cough was present in 23 cases.

4. Mass radiography was responsible for discovering 11 patients.

5. Hæmoptysis was present in 10 cases.

6. Dyspnœa was present in seven cases.

7. A discharging sinus in the right hypochondriac area from an underlying infected liver hydatid cyst was present in four cases.

8. Vomiting was present in four cases.

9. Jaundice was present in three cases. In all, this was due to a cyst obstructing the biliary channel.

10. Loss of weight had occurred in three cases.

11. Two patients were admitted to hospital for unrelated complaints, one for teeth extraction and the other with morbilli. In the former case a liver hydatid cyst was diagnosed clinically and proven at operation. In the last-mentioned case a chest X-ray film disclosed a cyst in the lower lobe of the left lung, and this finding was substantiated at operation.

Other less common forms of presentation were frequency of micturition, pleural effusion (two cases), upper respiratory tract infection, urticaria, acute retention of urine, hæmaturia, passage of hydatid membrane *per urethram*, simulated perforated ulcer, bilateral inguinal herniæ, and asthma; and one patient was moribund.

Radiological Diagnosis.

The Abdomen.

The Liver.—When a postero-anterior chest film shows a raised right cupola, a right lateral chest and antero-posterior Bucky film of the liver area are taken as routine measures in this department. By this means we have identified hydatid cysts of the right lobe of the liver. If the cyst is calcified, the appearance is usually diagnostic, but sometimes there is only liver enlargement, general or localized to one portion of the superior or inferior surface.

The differential diagnosis includes the following in relation to the right side of the liver: on the upper surface there may be a normal variant, a hernia of the liver through the diaphragm (one case), or a tumour arising from the diaphragm (rare); on the lower surface there may be a large caudate lobe, empyema or mucocele of the gall-bladder, or a tumour of renal, suprarenal or retro-peritoneal origin. In relation to the left side, in one case hydatid disease of the left lobe of the liver was indistinguishable from a large pseudo-pancreatic cyst.

Suprarenal.—There was one case of hydatid disease of the suprarenal. The rounded calcified shadow was very suggestive of hydatid disease.

Kidney.—There was one case of hydatid disease of the kidney. There was a rounded calcified shadow in the upper pole, displacing the upper calyx downwards.

Peritoneum.—When a calcified hydatid cyst is present in the peritoneum, the differential diagnosis includes (i) aneurysm of the abdominal aorta (one case), and (ii) large calcified fæcolith (one case).

The Lung.

In the lung the hydatid shadow may be masked by surrounding pneumonitis or fluid. The classical picture is a rounded well-demarcated shadow of water density, most often in one or other lower lobe, but the diagnosis is not certain prior to operation. (*a*) In a male over middle age, carcinoma and tuberculoma must be considered when the lesion is small and not quite circular. (*b*) In a child, if the shadow is large and peripheral, a hydatid cyst is most likely; encapsulated interlobar fluid usually has an antecedent history. (*c*) Posteriorly, hydatid disease is sometimes indistinguishable from neurofibroma. (*d*) Anteriorly, hydatid disease may be confused with a tumour of thymic origin—dermoid, pericardial cyst *et cetera*.

Casoni Test.

The Casoni test was performed on only 35 patients of the series. As has been the case at this hospital for the past ten years, the Casoni reaction was of very little assistance in helping to establish a diagnosis, except in a few cases. Of the 35 cases in which the test was carried out, the result was positive in 19 and negative in 16.

Complications of Cysts.

Daughter cysts were mentioned as having been found in 11 cases.

Sixteen cysts were found to be secondarily infected. Another three patients had empyema due to an infected pulmonary hydatid cyst, and there were four cases of fistula on to the skin from an infected liver cyst.

Broncho-cystic fistula was reported in eight cases.

A coexistent effusion was present in two of the lung cases.

Rupture of a cyst into the pleural cavity occurred in one case.

Coexistence of Other Diseases.

A boy, aged thirteen years, had a right-sided lung abscess due to a hydatid cyst, which appeared to have migrated from the liver through the right cupola into the thorax. At lobectomy, enlarged tracheo-bronchial glands were seen. One of these was removed and the section was typical of Boeck's sarcoid.

Calcification.

In all there were 15 instances of calcification in the cyst wall. The distribution of these is as follows: liver, 12 cases; suprarenal, one case; kidney, one case; peritoneum, one case.

Mortality.

Eight patients died. The details are as follows.

Death Due to Infection (Five Cases).

CASE I.—A patient, aged seventy-six years, was moribund on admission to hospital. Post-mortem examination showed that the lower lobe of the right lung was gangrenous and in contact with a large subdiaphragmatic hydatid cyst.

CASE II.—A patient, aged eighty-one years, was admitted to hospital with a tumour in the upper part of the abdomen and a fistula to the right costal margin. At operation an infected cyst was found and biliary drainage was secured through the sinus. Death was due to overwhelming secondary infection.

CASE III.—A patient, aged eighty-five years, suffered from an infected liver hydatid cyst, which was marsupialized with resulting spread of infection.

CASE IV.—A patient, aged eighty-eight years, was admitted to hospital with the diagnosis of an acute abdominal emergency, and died before operation. Post-mortem examination showed that the liver contained two cysts. The gall-bladder was gangrenous and contained two stones.

CASE V.—A patient, aged thirty years, was admitted to hospital with the diagnosis of left empyema, which was substantiated at autopsy. There was also an enormous liver hydatid cyst.

Death Due to Peritonitis (One Case).

A patient, aged seventy-six years, was admitted to hospital with the diagnosis of a perforated ulcer. At operation free fluid was found, but no cause was detected. At the post-mortem examination a ruptured hydatid cyst on the superior surface of the liver was found to be the cæuse of death.

Death Due to Drowning at Operation (Two Cases).

Two children, one aged five years and one aged nine years, with lung infestation, both died at operation from rupture of the cyst into a bronchus with aspiration and asphyxiation. However, both of these misfortunes occurred prior to the introduction of skilled anæsthesia to this hospital.

In all, 80 patients were submitted to operation. Of the whole series, 23 patients gave a history of previous operation for hydatid disease. The maximum number of previous surgical attacks on one patient was four, and that patient was a female, aged twenty-two years.

Infestation by Inhalation.

It has been suggested by other authorities—namely, Thomas and Bird—that hydatid ova may be carried by dust to be inhaled directly into the lungs and there develop into a cyst.

While we admit that many of our cases of lung involvement may be secondary to liver cysts as yet undetected, the possibility of primary lung infestation has to be borne in mind. It provides a very attractive means of explaining the comparatively high figures for lung hydatid disease and lobar distribution in our series.

Unusual Presentation.

We should like to report three cases in which the manner of presentation was unusual.

CASE I.—A male patient, aged forty-seven years, was admitted to hospital in the routine way for left inguinal herniorraphy. The patient alleged that his hernia had been present for three months and had followed a strain. It was readily reducible. At operation a thick-walled hernial sac was opened and a daughter cyst was disclosed which was easily removed intact. A mid-line incision disclosed many abdominal and pelvic daughter cysts, the primary cyst being in the liver.

CASE II.—A male patient, aged thirty-two years, presented complaining of "passing grapeskins" *per urethram* for three days. He gave a history of intermittent pain in the right loin of eight years' duration. There had also been some hæmaturia. An excretion pyelogram revealed a non-functioning right kidney. Retrograde pyelography suggested the presence of a collapsed hydatid cyst in the upper pole. At operation for nephrectomy the upper pole of the right kidney was found to be replaced by a large hydatid cyst, which contained numerous daughter cysts.

CASE III.—A male patient, aged forty-six years, had had two attacks of acute retention of urine relieved by catheterization during the month prior to his admission to hospital. For three months he had suffered from nocturia. He had no other symptoms. On examination of the patient, the bladder was found to be enlarged. No tumour was felt after catheterization. Rectal examination revealed a smooth, soft, slightly enlarged prostate. Above this was a firm cystic tumour. Laparotomy revealed a pelvic hydatid cyst, displacing the bladder upwards and forwards. The primary cyst was in the liver. The mechanism of acute retention of urine in this case was probably similar to that of an incarcerated pregnant uterus.

Summary.

Eighty-nine cases of hydatid disease have been analysed. Unusual features disclosed have been discussed, and a brief summary of three interesting case histories is included.

Acknowledgement.

We wish to thank Dr. L. W. Knight for permission to use the hospital records.

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CHEST SURGERY IN THE BLUE MOUNTAINS.

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IN 1840, Dr. Bodington, an English country general practitioner, made the first positive attack on the evils of bad ventilation and advocated that radical changes should be made in the treatment of phthisis. Like all reformers, he met vigorous opposition in his own country; but his advocacy of fresh air and rest for consumptives gained popularity abroad, especially in Germany and Switzerland.

In 1882, the tubercle bacillus was isolated by Koch, and tuberculosis was confirmed as being an infectious disease which demanded certain social considerations. As a result of the work of these two men the sanatorium developed, and usually the needs of isolation and salubrity were fulfilled by placing it high away on some distant mountain.

In the year in which Koch announced his startling discovery, Carlo Forlanini induced the first artificial pneumothorax, and in 1894 Röntgen discovered the X ray. In the last decades of the nineteenth century virtually all the surgical procedures in common use today were conceived and put into effect, mostly by continental surgeons, although Macewan in 1897 removed the remains of a lung destroyed by tuberculosis, with survival of the patient for many years. In 1913, Jacobæus, of Sweden, published an account of his technique of thoracoscopy and closed internal pneumonolysis.

The stage is now set for the entrance of the surgeon into the sanatorium, for "as these medical measures in the treatment of pulmonary tuberculosis were becoming gradually established, the role of the surgeon was also increasing. From small and uncertain beginnings in the last years of the 19th century, through a period of prolonged trial and error during which basic principles slowly crystallized out, surgical intervention has proceeded with mounting confidence, more especially during the last decade, which has seen phenomenal advances in technique and greatly increased range of application". This was written well over ten years ago by O'Shaughnessy, and since then equally phenomenal advances have been made. Today, with better diagnostic facilities, modern methods of resuscitation, improved anæsthesia and the introduction of the antibiotics, the range of surgical operations which can be applied in the treatment of pulmonary tuberculosis is increasing.

In July, 1951, a surgical unit was opened at Bodington Red Cross Hospital, which hitherto was an institution run on the old sanatorium lines. The preparations prior to this undertaking were confronted with numerous difficulties, which at times seemed almost unsurmountable. The problems particular to this project related mainly to the fact that Bodington is sixty miles from the city of Sydney. The difficulty of obtaining labour and materials to convert old buildings into an operating theatre block and surgical wards is a story in itself, and the process took over two years to accomplish. The availability of additional trained nursing staff and their accommodation, the training of at least one resident medical officer capable of assuming the responsibility for the post-operative management in this specialized branch of surgery, and the procurement of essential thoracic surgical instruments were all difficulties to be overcome.

It is the purpose of this paper to review the problems associated with, and the work done by, the surgical unit at Bodington Red Cross Hospital from July, 1951, to July, 1952. It should be noted that figures are presented only to indicate that patients have withstood successfully the acute surgical episode and have been able to be "upgraded" from the surgical ward. Only after several years have elapsed can some idea be gained, from the scientific point of view, of what has been achieved. However, in the selection of cases, and the choice of a given operative procedure, the experience of other clinics abroad has been taken as a guide.

In the first year, the work done by the surgical unit consisted of the performance of 100 operations on 53 patients; there were no deaths. Thoracoplasty was carried out on 34 patients, in a total of 81 stages. Resection was carried out on 19 patients, as follows: resection of a segment of a lobe, two cases; lobectomy with segmental resection, one case; lobectomy with decortication, one case; lobectomy, eight cases; pneumonectomy, seven cases.

One patient, five weeks after completion of thoracoplasty, developed a pyogenic condition of the Semb's space, but this was controlled by repeated aspiration combined with the instillation of penicillin and the use of streptokinase. No permanent morbidity has resulted to influence the final result or to prolong the stay in hospital.

The Essential Criteria for a Successful Surgical Service.

The problems associated with any service will vary with the type of institution, with its location and with the personnel concerned. However, to ensure good results, certain essential fundamental criteria must be fulfilled, which consist of pre-operative, operative and post-operative requirements.

Pre-Operative Requirements.

Proper selection of patients is the first essential for successful surgery. It has been the custom for the physician responsible for the patients' general management in the institution, with the surgeon, to select and interview patients, and when possible, at the clinic which they attend or where their condition was diagnosed. Of the 51 patients operated on, four were considered "bad risks". In general, the policy of operating on patients who have a reasonable chance of rehabilitation and who do not present too many hazards has been, and will be, adhered to for the present. It is felt that to operate as a last resort is not fair to those concerned with the operation, to the institution, or to the reputation of the operation itself.

Although many patients had spent many months in the institution before operation was considered possible, a minimum period before operation of three or four weeks is used to investigate and prepare the patient. During this period the following points are attended to: (i) improvement in the patient's general condition is attempted; (ii) if indicated, a course of streptomycin and PAS is given; (iii) attention is directed to improving the patient's respiratory function with physiotherapy according to the patient's needs and the particular operation concerned; (iv) clinical and, if necessary, special investigations of other organs are carried out; (v) almost as a routine procedure tomography is employed to localize exactly the diseased area, to try to elucidate its exact pathology and especially to assess the lung thought to be free of disease; (vi) the patient is taught the correct psychological approach to the operation, and to eventual rehabilitation, with the use of propaganda in the form of displaying other patients who have had a similar operation.

Operative Requirements.

All the usual equipment of an operating theatre, together with special chest instruments and equipment, must be available. The theatre staff must be well trained. Anæsthesia, whether local or general, must be in the hands of a specialist anæsthetist who is interested and engaged regularly in the practice of chest anæsthesia. The surgeon must possess adequate training and skill and must have proper assistance. Routine blood transfusion will be needed in the majority of cases. Provision must be made for all emergencies, including tension pneumothorax, bronchoscopy, vascular surgery and cardiac arrest.

Post-Operative Requirements.

A specially trained nursing staff must be in attendance during the early post-operative period. If the surgeon delegates the responsibility of part, or all, of the post-operative management, the medical officer concerned must be experienced in these cases and particularly in the performance of bronchoscopy. Routine X-ray films with a portable machine are taken on the first, third and fifth days after the operation. A physiotherapist, trained in chest work, must supervise the patients after operation. All patients have a minimum period of three months' bed rest, or modified bed rest, after the operation, followed by a variable period of graded activities.

Discussion.

It is thought that the foregoing are minimum requirements, and that their importance cannot be over-emphasized. Failure to observe any one of these standards will spoil the results and produce varying degrees of morbidity or even disastrous mortality.

Certain points are worthy of emphasis and amplification. Provided that an efficient service, fulfilling the above-mentioned criteria, has been established, the selection of cases will predetermine largely the morbidity and mortality. A bad result in a large, well-established chest hospital or thoracic unit in a general hospital is a disaster for the patient and for those immediately concerned. A bad result in a sanatorium, especially in its early development, where all the patients and the staff are known to each other, is a disaster affecting the whole institution. The price of failure in the surgery of tuberculosis can be a very heavy one indeed, so that the utmost consideration must be given to keeping the complication rate within well developed limits. As a corollary to this, when the results are good the morale of the institution is high, and this is an important factor in attracting and keeping staff.

The question of anæsthesia needs emphasis. Many of the operations are long and tedious both for the surgeon and for the anæsthetist, so that they must be temperamentally compatible and each aware of the other's problems. At any time, either one must be prepared to modify action according to the tactical situation. The anæsthetist must have a working knowledge of the operation and the surgeon's methods, and at times actively assist in the surgical manipulations. A satisfactory feature of the first year's work has been the development of an efficient anæsthetic service.

Perhaps the greatest factors in reducing morbidity and materially affecting the mortality rate are the quality and continuity of the post-operative care. This, in practice, largely depends on the skill and conscientiousness of the medical officer to whom part, or all, of this responsibility falls. Although he must have an efficient and loyal nursing staff, the utmost vigilance is required throughout this period, and there is no place for the "nine to five" mentality. This raises larger issues; but it is a fact that throughout the world the best work is done where the medical staff consists of persons seriously contemplating a career in chest work.

The oft-recurring words "surgical service" require comment. In the early months, individual operations were performed from time to time, usually on a Saturday, by mutual arrangement with those concerned. In the last six months, the whole *tempo* of the work has been accelerated as it was soon realized that the optimum use was not being made of the surgical nursing staff. When it became possible to operate on one whole day each week, with an additional half day each fortnight, the number of patients completing surgical treatment has increased from two or three a month to eight or ten a month. An additional advantage has been that operation lists can be prepared well in advance, which makes for greater efficiency and harmony.

For those who are sceptical of the value of all this endeavour, one can only refer them to the vast literature on the subject of the surgery of pulmonary tuberculosis. It can be stated with certainty, provided the disease is not far advanced, that in the vast majority of patients with tuberculosis the disease can be rendered inactive and non-infectious. These patients can be rehabilitated to a reasonably normal and useful existence. It is considered that at Bodington the initial cost of building and equipping an operating theatre and a surgical ward has been made good in the first year. This involves monetary considerations alone in terms of pensions and economic loss to the community, and takes no account of the humanitarian or public health aspects associated with tuberculosis. The separation of husband and wife with the dissolution of the home—the child wrested from its mother—the financial

ruin of the wage earner—the young man's career cut short—all are personal tragedies affecting more than the individual sufferer, and these cannot be measured in economic terms.

During the development of this service a number of other points have emerged. One of the most gratifying features has been the development of a certain *esprit de corps* amongst the staff, from the theatre orderly upwards. A number of visitors have been welcomed from time to time, and these have brought new ideas and refreshing comments. The disadvantage to the visiting staff of geographical isolation from the city has not proved so great as originally considered, being offset largely by the tranquillity and freedom from distractions that isolation brings. Finally, everyone who has taken part in this enterprise has done so with a tolerant and pioneering spirit, and has been ready to accept shortcomings and anxious to alleviate them.

It remains to be seen what the future holds; but it is hoped that the next few years will see an expansion of the present service, the training of more medical officers and nurses, and the development of that indefinable "collegiate" atmosphere which is always to be found in active and progressive hospitals.

Acknowledgements.

Space does not permit the acknowledgement of the help given by many friends, but it is desired to thank the executive of the New South Wales Branch of the Australian Red Cross Society, and those members of the general public who support the society, who have made this work possible.

A METHOD OF MOUNTING OPHTHALMIC MUSEUM SPECIMENS IN A SOLID MEDIUM.

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VARIOUS methods used for the mounting of museum specimens have been described by Ashton (1950). He described the use of "Perspex" boxes, solid "Perspex" mounting and solid resin mounting, and discussed the advantages and disadvantages of each. The use of fluid media has obvious disadvantages. Solid "Perspex" contracts and distorts the specimen, and solid resin has the disadvantage of being a yellow colour.

The requirements of a method for displaying ophthalmic preparations are above all that the specimen can be easily seen and handled. The specimen should be able to stand a certain amount of knocking about and remain in good condition. The ease and rapidity of preparation are important, and expense is a factor to be considered.

With these requirements in view, it was decided to explore the possibility of solid media for mounting excised eyes, as such media seemed to offer the best prospects. After various experiments, gelatin combined with "Formit" resin was found to be most suitable, and the following is a description of the technique which we have found most satisfactory.

The value of the specimen can be enhanced by the inclusion in the preparation of a stained slide of the specimen. This slide can be readily examined with a hand lens, and considerable detail made out and information rapidly acquired.

Method.

The apparatus required is as follows: one Petri plate (three inches in diameter), one lid of a Petri plate (two inches in diameter), one burette, one bone spatula and a glass mortar.

The following reagents are required: "Formit C25" (phenolic formaldehyde resin), hydrochloric acid (between 31% and 35% commercial), gelatin ("Davis"), formalin (40% commercial), sodium chloride.

Preparation of Gelatin.

The gelatin is prepared as follows:

Slowly dissolve five grammes of gelatin in 100 millilitres of distilled water by treating in a water bath at 60° C. (Do not boil the mixture.) Filter while hot through a rough filter paper, add 0·9 gramme of sodium chloride, and when the gelatin is at 20° to 30° C. add 10 millilitres of formalin. Place a thin layer (no more than three millimetres) of this solution in the inside portion of the large Petri plate and set the specimen to be mounted in the centre of the plate. The side of the specimen to be viewed is placed downwards in the solution. Allow this to set well, preferably in a refrigerator.

When it is set, press a small Petri plate over specimen, keeping the plate in the centre and so making a cut in the gelatin where the plate has been pressed. Clean the gelatin from around the small plate and remove the plate. Place the small Petri plate on a jar which has a diameter smaller than that of the plate, fill the plate as full as possible of gelatin and invert the large plate down over it. Care must be taken at this stage to prevent bubbles; the small plate must be very full, and the inversion of the large plate very gradual.

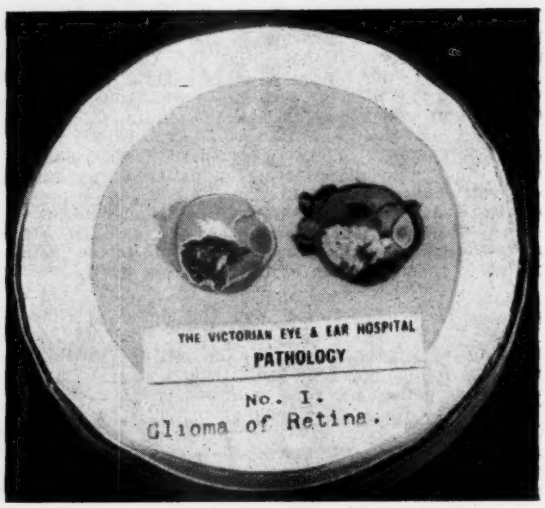

FIGURE I.
Specimen mounted in gelatin.

The large Petri plate with the specimen now rests on and over the small plate, and the specimen is entirely enclosed in glass; the top viewing side is formed by the large Petri plate and the bottom and the sides by the small Petri plate.

Carefully place the whole in a refrigerator and allow it to set. After two and a half hours turn the whole thing upside down and place a little dilute gelatin (2%) around between the small and large plates; this seals the edges of the small plate and prevents bubbles from forming in the small plate. When the gelatin is well set, remove the specimen from the refrigerator and clean out the excess gelatin with cotton wool swabs soaked in warm water; allow it to dry while the plastic is being prepared.

Preparation of the Plastic.

The plastic is prepared as follows:

Weigh out "Formit" (75 to 100 grammes are sufficient for one plate) in the mortar, allowing for the weight of the mortar. Add to this the hydrochloric acid from a burette, dropwise, stirring continuously. One hundred grammes of "Formit" should require 2·5 to 3·5 millilitres of hydrochloric acid.

The temperature has an effect on the mixing of "Formit"; if the "Formit" is cold the reaction is slower; it is advisable to keep the "Formit" in a refrigerator. The working life of the "Formit" mixed with hydrochloric acid is from ten to thirty minutes. It will set in two hours. It can be removed from utensils with methylated spirits, provided that it has not hardened. The "Formit" resin will keep in a tightly

closed jar in a refrigerator for three months. It is advisable to keep the acid ratio as low as possible. The smaller the hydrochloric acid ratio, the longer the working, and the slower the reaction. During the mixing of the "Formit" it will change through colourless, deep blue, and green; the last gradually disappears as the "Formit" becomes opaque. Only a few drops of hydrochloric acid are needed after this stage, but it needs to be stirred continuously until it begins to thicken and become whiter in appearance.

When the "Formit" can just run freely, pour it into the large plate over the small plate and allow to stand for five to ten minutes (place the Petri plate on a jar with a diameter smaller than that of the plate). Now invert the large Petri plate lid over it, allowing one side of it to touch first, and gradually let the lid rest over the "Formit", pushing the bubbles out in the process. The lid of the large Petri plate is now resting on the "Formit", and the excess "Formit" will be spread down between the lid and the inside of the large Petri plate. Leave the preparation for half an hour, then wash off the excess "Formit" with the methylated spirits.

A neat, smooth line should now be sealing the lid and inside of the large Petri plate. Leave the preparation overnight, and the next morning wash over the mould with steel wool and soap, and scrape off any scraps of plastic that may be adhering. Dry well and seal the plastic join with clear lacquer and dry.

If a stained section is to be embedded in the preparation, it will be necessary to be sure that the section is well dried and the edges must be sealed with clear varnish.

Reference.

ASHTON, N. (1950), *Brit. J. Ophth.*, 34: 7.

THE ADVENT OF WOMEN INTO MEDICINE.[1]

By I. YOUNGER ROSS, O.B.E.,
Melbourne.

THE advent of women into medicine began in the middle of the nineteenth century in America, where the English-born Elizabeth Blackwell graduated at a small medical college in Geneva, in the State of New York. Returning to England to practise, she was automatically placed on the new medical register in 1859. She lectured to groups of women on medical subjects, and records that her lectures were attended by a bright, intelligent young woman of twenty-three, who afterwards became famous—Elizabeth Garrett Anderson, the first woman graduate in medicine in England and in France, the second woman doctor to register in Great Britain, and the first and only woman member of the British Medical Association for twenty years.

I am confining myself to the advent of women into medicine in this State.

The minutes of the Medical Board of Victoria show that on June 2, 1865, the first medical woman applied for registration. She was Dr. Wilhelmina Ferguson, who came here from America as ship's surgeon on a freighter. She was a graduate of a medical women's college of the University of Pennsylvania, established in 1850 in Philadelphia, the year after Elizabeth Blackwell's graduation. This college, still in existence, has close and interesting links with our early medical women. The Medical Board doubted their power to register her and referred the matter to the Crown Law Department. The Honourable the Attorney-General ordered that his opinion be recorded in the minutes: "I think the Board are bound to give a Certificate in this case. (Signed) Geo. Higinbotham." (July 30, 1865.)

But if Wilhelmina Ferguson favourably impressed our legal experts, she produced quite the opposite effect on the medical profession. The editor of the *Australian Medical Journal* in July, 1865, wrote a long and scathing article on medical women, in which we read the following:

> The applicant comes from America, where women insist on doing what is done for them in less advanced communities—and a woman who voluntarily devotes herself to a state in which the abandonment of the domestic qualification seems a necessity, is a being whom men do not love and with whom women can hardly sympathize . . .

He ends with these words:

> But there is little fear in any British Community Medical Women will exist as a class. They will occasionally be imported like other curiosities and the people will wonder at them just as it wonders at dancing dogs, fat boys and bearded ladies, and in accordance with the demand for novelties they will perhaps be as successful in a material sense, but they are not likely to be included in the list of British institutions.

Did these statements discourage Wilhelmina? We do not know; but she never again approached the Medical Board, and we must presume she sailed again for her native land.

For twenty long years no further applications for registration came from women doctors; then in 1885 Dr. Laura Morgan, a medical graduate of a New York medical women's college, sent in her application, but the Board did not consider the terms of Act number 262 had been complied with. Month after month, from August to April of the following year, the question came up in the minutes. Questions were asked in Parliament. The Premier's help and even the advocacy of that supreme orator Alfred Deakin failed to alter the Board's original decision. After helping Dr. Singleton at his medical mission in Collingwood, Dr. Laura Morgan also returned to America, remarking to Dr. Clara Stone, as she was leaving, that she "refused to practise under a cloud".

We come now to the most famous name on the medical register—the first medical woman to practise in Victoria. She, like Wilhelmina Ferguson, was a graduate of the Medical Women's College in Philadelphia; this was the Australian-born Dr. Constance Stone, who had gone abroad to obtain a medical degree denied her in her own country. After graduating in Philadelphia she crossed to Canada to obtain a British degree, doctorate in medicine, at the University of Toronto. Then she went to London, met Dr. Elizabeth Garrett Anderson, and obtained the Licentiate of the Society of Apothecaries, the only possible medical qualification for women in Great Britain.

The Board gave me the name of Shirley Roberts, who registered three years before Dr. Constance Stone; but Miss Reynolds, of the research department of the Public Library, found that this was the name of a man and not of a woman.

The next names on the register are those of the first graduates in medicine of the University of Melbourne.

Sydney was the first university to admit women to the study of medicine; but her first woman student, Dagmar Berne, completed her course in London. Melbourne therefore has the honour of being the premier university in Australia to grant medical degrees to women. November 6, 1951, marked the sixtieth anniversary of the graduation of the first two of a group of seven medical women. They were Dr. Clara Stone, now living in retirement in Auburn, Melbourne, and Dr. Margaret Whyte, who died a few years ago. The remaining five members of this group all graduated in the following three years.

The engrossing story of how these seven young women came together and prevailed on the University Council for permission to study medicine, and of the handling of the successive problems which arose, shows initiative, careful planning and wise foresight. It has not been easy to establish authentic records, as these women were so engrossed in their task that they sank their personalities to achieve their objective; but I was fortunate in having access at the Queen Victoria Hospital to the correspondence and newspaper cuttings carefully collected by the literary Dr. Lilian Alexander, presented to the hospital by her nephews, and to Dr. Clara Stone for her many personal reminiscences.

[1] Read at a meeting of the Section of History of Medicine, Australasian Medical Congress (British Medical Association), Eighth Session, August 22 to 29, 1952.

In the late eighties of the last century two very talented young women met at an English literature class at the University of Melbourne. They were Helen Sexton, who was waiting an opportunity of going overseas, and Lilian Alexander, who was completing a brilliant arts course with honours in every year. Her uncle was urging her to study medicine abroad, but she had strong home ties and persuaded her newly found friend Helen Sexton to apply to the Council of the University of Melbourne for permission to study here. Realizing that there is strength in numbers, they decided to put the following notice in the Press (January 15, 1887):

> Two young ladies are desirous of studying Medicine in Melbourne and would be glad to hear of others who would do so.

They were delighted when they received prompt replies from the following: Clara Stone, a sister of Constance Stone; Margaret Whyte, a daughter of the headmaster of the Model School (the home now of the Royal Australasian College of Surgeons); Anne and Elizabeth O'Hara, daughters of P. K. O'Hara, of the South Melbourne College; Anna Higgins, sister of Mr. Justice Higgins; and Grace Vale, a friend of Clara Stone.

There now began to appear in the Press letters and correspondence in favour of medical women students. *The Age* commended the young women for considering the advice of Patrick Whyte, to test the validity of the Act by offering their entrance fees and daring the university to close its doors against them. However, less drastic methods must have prevailed, because a few days later (February 27, 1887) *The Age* published a copy of the now famous letter which P. K. O'Hara sent to the University Council, in which he stated in no ambiguous terms that he had made inquiries in Adelaide and Edinburgh and had gone to Sydney in his Christmas holidays and had made up his mind to send his two daughters to Sydney to study medicine, although he did not wish to send them away from home amongst strangers to acquire what should be available in Melbourne.

In order that this letter should receive a favourable reception, Helen Sexton and Lilian Alexander had taken the precaution of interviewing every member of the University Council personally.

It was moved by Dr. Alexander Morrison: "That the Council approve of the admission of ladies to the degrees of medicine, and that the details be referred to the Faculty of Medicine."

Dr. (later Sir John) Madden seconded the motion, and it was carried by ten votes to three. The dissentients were the Vice-Chancellor (Dr. Brownless), Dr. Cutts, and R. J. Ellery, the astronomer.

In referring to this in later years Helen Sexton writes:

> It entailed many months of intensive work, the notice in the press cost only one shilling, the Movement was put through by steady work and reasoning and incurred no expense at all. Lilian Alexander was splendid and logical in her letters—worth millions of me. I hit out, was the fighter, defied them, jeered at them.

The timing of the appeal to the medical faculty was most opportune, for one of the new overseas professors, Dr. Orme Masson, was the son of the famous Edinburgh professor of English literature, who had befriended the medical women students in the unfortunate Jex-Blake controversy, when the medical faculty of the Edinburgh University had refused to lecture to the women enrolled as medical students in 1869.

Professor Orme Masson's clear and decisive words clinched the discussion in our women's favour with the announcement: "Gentlemen, the ladies have come to stay."

Clara Stone well remembers one morning in March, when she called at the registrar's office, offered her entrance fees for first year in medicine, and had them accepted.

So our seven adventurous young women began first year medicine, dealing then, as now, with its purely scientific subjects.

Towards the end of first year troubles arose over the specialized subjects of the medical course, just as they had done in Sydney and Edinburgh. Letters again began to appear in the Press. In one leading article on September 27, 1887, the following sentence occurs: "The womanly and touching pathos of the women students should appeal to the heart of the whole community."

The battle for separate or mixed classes for medical students had begun in earnest.

Forty years later Helen Sexton wrote in the London *Times* in support of coeducation for medical students in Great Britain. In Melbourne men and women attended lectures, the only difference being that women were allowed to dissect apart from the large dissecting room, this being found easy for the demonstrator and more pleasant for the women students.

The medical faculty favoured mixed classes and appealed to Professor Anderson Stuart, of the University of Sydney, for his opinion. His reply was: "I have had a woman [Dagmar Berne] in my class for two years, and as gentle and modest a young lady as I have ever met, as such she came to us and as such she has remained."

Our young women insisted on separate classes in anatomy and for nearly twenty years separate dissecting rooms were provided, and then by the careful handling of the situation by Professor Berry mixed classes were successfully introduced. Similarly with the hospitals. The Alfred Hospital threw open its wards and out-patient departments to women. In their final year the women applied to and were granted the privilege of attending the Melbourne Hospital. The only proviso was the request that two of the young ladies should (to use a phrase of the last century) "put up their hair", to offset their schoolgirl appearance.

Clara Stone and Margaret Whyte were the first two of the group to graduate in medicine on November 6, 1891; all the others followed over a period of three years.

The Melbourne Hospital has always appointed the honour graduates in order of merit to its resident staff. Margaret Whyte topped the honour lists by gaining the coveted exhibitions in both medicine and surgery. She was therefore entitled to a position on the resident staff. The committee refused; our young women were irate. Margaret Whyte waived her claim and went to the Women's Hospital as their first resident woman doctor.

In 1896 Janet Greig and Freda Gamble were amongst the six leading doctors in the honours lists, with Jane Greig seventh. So to appoint six men three women would have to be passed over. The question was hotly debated and feelings ran high, for the women regarded their claim as fundamental. Finally Janet Greig and Freda Gamble were appointed. When their term of office was completed the president of the hospital committee complimented them on their work and said that "they had convinced all who had opposed them, of the great value of their work".

Dr. Fred Bird, in his retiring presidential address, summed up the year 1896 as a year of great achievement. He reported that it marked the admission of the first women members to the Medical Society of Victoria and, he was proud to say, the admission of the first women surgeons to his wards had been a decided success. Dr. Bird went on to say that they had had only just time to save their chivalrous reputation, for the Council of the Royal College of Surgeons had recently passed a resolution admitting women to the examinations and privileges of the college. He further said:

> Not only individually but collectively have women come to the fore, for the women practitioners of this City, with the most commendable zeal, have established a new hospital. This beginning, modestly and with much pre-vision on the part of its originators, has a large sphere of usefulness before it in the immediate future.

He was referring, of course, to the foundation of the Queen Victoria Hospital by a group of ten pioneer women, called together by Dr. Constance Stone on September 5, 1896. Though without funds or a building, they had determined to open at once an out-patient department, and that very night Dr. Bryan Jones had, in the name of the deacons, offered them the use of a hall in Latrobe Street, at the back of the Welsh Church.

Great changes, revolutionary changes, have occurred in the attitude towards women doctors since their advent into medicine in the middle of the nineteenth century.

It is an interesting fact, and one not widely known, that only for the comparatively short period of 200 years, between the seventeenth and the nineteenth centuries, have women been debarred from educational and professional privileges; before then women as well as men had so distinguished themselves in the healing art as to have left authentic records behind them. In the last hundred years the lost ground has been regained, and the success of such hospitals staffed by women for women as the Queen Victoria Hospital in Melbourne, the Rachel Forster Hospital in Sydney and the Elizabeth Garrett Anderson Hospital in London, and the New York Infirmary for Women and Children, clearly prove our seven young women's claim that there was a crying need for their services.

Reports of Cases.

A CASE OF INFECTION WITH DIENTAMŒBA FRAGILIS.

By C. R. BOUGHTON,
The Royal North Shore Hospital of Sydney,
and
A. J. BEARUP,
School of Public Health and Tropical Medicine, University of Sydney.

DIENTAMŒBA FRAGILIS was first described as a parasite of the human intestine by Jepps and Dobell, 1918. The distribution is probably world-wide, but on account of its low incidence in the general population it is not well known by pathologists. The lack of any symptoms which can be definitely ascribed to its presence also tends to lessen the interest which would otherwise be taken in its occurrence. As reports of its occurrence in Sydney have been infrequent the following case is put on record.

Clinical History.

The patient was a married woman, aged sixty-four years, who was being investigated at the Royal North Shore Hospital of Sydney for chronic diarrhœa, anæmia and rheumatoid arthritis. She was born in Bundaberg, Queensland, and was quite well until she travelled to Mackay at about the age of twenty years. A few days after arrival she developed fever and diarrhœa with the passage of about six yellowish watery motions daily. The diarrhœa persisted and she was treated by bowel lavage, an iron and arsenic preparation by mouth, and deep intramuscular injections (possibly antimony). Her health was good from the age of thirty to forty years, although she had occasional attacks of diarrhœa. She then came to Sydney and diarrhœa again became troublesome. The attacks were more frequent in the spring, lasted two to three days and were accompanied by abdominal discomfort and distension. Mucus was present in the stools. Severe attacks were associated with tenesmus and dry retching. At the age of fifty-nine she developed rheumatoid arthritis. She became anæmic, lost her appetite and started to lose weight.

Physical examination five years later showed a very pale woman suffering from extensive rheumatoid arthritis. Apart from a smooth, red tongue, examination of the alimentary system revealed normal findings. The stools were observed to be mainly pale yellowish in colour. Slightly enlarged glands were felt in both axillæ. Some œdema of both ankles was present and a soft systolic murmur was heard in all areas of the heart.

A fractional test meal showed achlorhydria, with a low total chloride level. A barium meal showed no abnormality in the upper part of the alimentary tract and barium enema showed a large calibre colon but without any evident organic lesion. There was no occult blood in the stools and split and unsplit fat in the stool was normal. Examination of the blood showed 9·8 grammes *per centum* of hæmoglobin with a mean corpuscular hæmoglobin content of 21 micromicrogrammes. The total white cell count was normal and at no time was there an increase in the eosinophile cells. A biopsy of the enlarged lymph nodes in the axilla showed reactive hyperplasia but no pathological change.

Sigmoidoscopy was performed on several occasions and revealed a normal mucosal pattern with an occasional small patch of hyperæmia. Examinations of warm liquid stools in 1951 revealed large numbers of active motile amœbæ which were subsequently identified as *D. fragilis*. Repeated examinations of stool late in 1952 failed, however, to reveal the amœba, despite the persistence of attacks of diarrhœa and the absence of specific treatment. Examination of specimens from the patient's husband gave similarly negative results.

Discussion.

In Australia, *D. fragilis* was found once in 2365 examinations of soldiers and twice in 416 children under 14 years in a Sydney hospital (Bearup *et alii*, 1949). These figures would under-estimate the true incidence, as the stools were normally passed and were examined primarily for cysts, which do not occur in *D. fragilis*. Loose stools, from the administration of purgatives or from other infections of the gut, usually show a higher incidence. Inmates of institutions such as mental asylums also tend to higher figures than the general population.

D. fragilis is a small amœba (about 10 microns), actively motile, with one or two nuclei (about 80% are binucleate). No cysts are known, nor is the method of transmission from host to host. In fixed and stained amœbæ the nuclei show distinctive characters: a delicate nuclear membrane enclosing a small central karyosome surrounded by a rosette of four to eight larger chromatin granules.

Diagnosis.

Wenrich (1944), who has given particular attention to this parasite, says that for diagnosis of dientamœba the following are needed: (*a*) soft or fluid fæces, (*b*) examination while the fæces are still fresh, (*c*) recognition of the amœba in fresh smears and/or in properly fixed and stained slides. He also states that the characteristic morphological features are: (*a*) the comparatively small size (5 to 12 microns), (*b*) the presence of two nuclei, (*c*) broad, hyaline pseudopodia with indented or serrated margins, (*d*) active and progressive motility in freshly voided stools.

The smears can be made direct from mucus or from fæces diluted with physiological saline. The slide should be kept warm. The ectoplasm and endoplasm are well differentiated; within the latter are vacuoles containing bacteria and other food particles, but never red blood corpuscles.

Hakansson (1942) recommends a thin fæcal smear made in water, and points out the distinctive way in which *D. fragilis* ruptures and disintegrates when treated in this way. By the time the smear is focused the amœbæ have begun to swell and after a few minutes the ectoplasm ruptures and the endoplasm is expelled. The ectoplasm then quickly regains its spherical form, obliterating all traces of the tear.

For fixing and staining, the methods suitable for *Entamœba histolytica* may be followed fairly closely. Wenrich (1944) recommends a higher concentration of acetic acid than usual; that is, Schaudinn's fixative should have 15% instead of the usual 5% of acid, and Bouin's fixative is modified to contain saturated picric acid 75 parts, formol 15 parts, glacial acetic acid 10 parts.

Possible Pathogenicity.

Published reports seem to indicate that *D. fragilis* infections are sometimes responsible for gastro-intestinal symptoms (Wenrich, Stahler and Arnett, 1935; Knoll and Howell, 1945) and, at times, an increase in the relative (and absolute) eosinophile cell count. Hakansson (1936)

reported an infection in an adult in Panama in which the presence of large numbers of dientamœbæ was associated with aggravated diarrhœa and other gastro-intestinal symptoms. Both symptoms and dientamœbæ disappeared with carbarsone treatment. Sapero (1939), in a report on non-dysenteric amœbiasis among 450 United States Navy men, recorded that of 106 with *E. histolytica* 43% had complaints; of 108 who had no intestinal protozoa only 7% indicated symptoms, and of 236 who had other intestinal protozoa 16% had complaints. Hosts of *E. coli*, *E. nana* and *Iodamœba bütschlii* showed no more symptoms than those without protozoa. On the other hand, complaints were recorded for 27% of 44 cases of infection with dientamœba, "a finding which suggests a pathogenic role for this organism". In taking the history, stress was placed not only on gastro-intestinal symptoms but also on those referable to other systems.

Hood (1940) in Chicago found seven cases of *D. fragilis* infection, three in children and four in adults, among 164 persons examined. One child, in whom *E. histolytica* was also found, had definite digestive disturbances. Another child had diarrhœa and 11% eosinophile cells. The four adults had diarrhœa and other intestinal symptoms. Treatment (chiniofon or emetine) removed both amœbæ and symptoms. Wenrich (1944) has had four periods of infection with *D. fragilis*, one lasting for twenty-six months. At the beginning of each period dientamœba was discovered when a stool was examined because of an attack of diarrhœa. In each infection the diarrhœa gradually abated, but there followed a period of increased fatigability and low resistance to colds. No treatment was taken and the organisms disappeared spontaneously. Knoll and Howell (1945) report a series of cases in the majority of which gastro-intestinal symptoms were present and in which a short course of carbarsone caused the disappearance of the amœba and relief of symptoms.

"At present there is no evidence that *D. fragilis* invades tissues, but it appears to be associated with more generalized evidence of ill health, suggesting that the effects are toxic in nature. More studies will be needed to determine whether or not *D. fragilis* can be the cause of illness but an effort to settle the question should be made" (Wenrich, 1944).

Summary.

A case of infection with *Dientamœba fragilis* is reported. No evidence was obtained that any of the symptoms were related to the presence of this amœba.

Details are given of methods for the identification of *D. fragilis* in stools.

Acknowledgements.

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Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"New Concepts of Hypnosis: As an Adjunct to Psychotherapy and Medicine", by Bernard C. Gindes, M.D., with an introduction by Robert M. Lindner, M.D.; 1953. London: George Allen and Unwin, Limited. 8½" × 5½", pp. 288. Price: 15s.

Intended for both "professionals and lay men".

"Fathers are Parents, Too: A Constructive Guide to Successful Fatherhood", by O. Spurgeon English, M.D., and Constance J. Foster, with an introduction by the Reverend Leslie J. Tizard, B.A., B.D., B.Litt.; 1953. London: George Allen and Unwin, Limited. 9" × 6", pp. 318. Price: 15s.

This book is "dedicated to the proposition that fathers are parents, too—and important people".

"The Annual Survey of Psychoanalysis: A Comprehensive Survey of Current Psychoanalytic Theory and Practice", edited by John Frosch, M.D., in collaboration with Jacob A. Arlow, M.D., Nathaniel Ross, M.D., and Sidney Tarachow, M.D.; Volume I, 1950; 1952. New York: International Universities Press, Incorporated. London: George Allen and Unwin, Limited. 9½" × 6½", pp. 572. Price: 75s.

The publications of 1950 have been "taken apart and put together again, after deletion and editing".

"Diseases of Domestic Animals in Australia (Part 4): Protozoan and Viral Diseases", by H. R. Seddon, D.V.Sc.; 1952. Commonwealth of Australia, Department of Health: Service Publication (Division of Veterinary Hygiene) Number 8. 10" × 6½", pp. 214, with three maps.

A continuation of Dr. Seddon's important studies.

"Famine Disease in German Concentration Camps, Complications and Sequels: With Special Reference to Tuberculosis, Mental Disorders and Social Consequences", by Per Helweg-Larsen, Henrik Hoffmeyer, Jorgen Kieler, Eigil Hess Thaysen, Jorn Hess Thaysen, Paul Thygesen and Munke Hertel Wulff; 1952. Copenhagen: Ejnar Munksgaard. 9¼" × 7", pp. 460, with 25 text figures. Price: Dan. Kr. 35.00.

This is Supplement number 83 of *Acta psychiatrica et neurologica scandinavica*.

"Influenza: And Other Virus Infections of the Respiratory Tract", by C. H. Stuart-Harris, M.D., F.R.C.P., with a foreword by C. H. Andrewes, M.D., F.R.C.P., F.R.S.; 1953. London: Edward Arnold and Company. 9" × 6", pp. 242, with 98 illustrations. Price: 30s.

Designed to make practitioners aware of "what is known and what is still vague and nebulous".

"The Pharynx: Basic Aspects and Clinical Problems", edited by Abraham R. Hollender, M.D., F.A.C.S.; 1953. Chicago: The Year Book Publishers, Incorporated. 9" × 6", pp. 574, with many illustrations.

A book for students and practitioners dealing with "direct and related problems concerning the pharynx", the work of 22 contributors.

"Progress in Ophthalmology and Otolaryngology: A Quadrennial Review"; Volume I; 1952. London: William Heinemann (Medical Books), Limited. Part One—Ophthalmology, edited by Meyer Weiner, M.D., and A. Edward Maumenee, M.D. Part Two—Otolaryngology, edited by Percy E. Ireland, M.D., and Joseph A. Sullivan, M.B. 9" × 6", pp. 680, with 56 illustrations. Price: £5.

The work of 72 contributors.

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Intended chiefly for house surgeons and surgical registrars.

THE CORONATION OF HER MAJESTY QUEEN ELIZABETH II, JUNE 2, 1953.

Thy choicest gifts in store
On her be pleased to pour;
Long may she reign; . . .

The Medical Journal of Australia

SATURDAY, MAY 30, 1953.

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THE CORONATION OF HER MAJESTY QUEEN ELIZABETH II.

On Tuesday next the thoughts of the peoples of the British Commonwealth of Nations will be turned to Westminster, where the solemn crowning of their Queen will take place. As is fitting to the occasion, representatives of every part of Her Majesty's realms will be present. Those who are privileged to attend will, beyond all doubt, be impressed and moved by the solemnity of the occasion and by the rejoicing that will accompany it. Those who are not privileged to be present will have to be content with the spoken and printed word, by broadcasting and Press, but they will, none the less, be able to have a part in the rejoicings and to join Her Majesty in the dedication of self to a life of service and upright living in a troubled world.

The crowning of sovereigns is of ancient origin. The *Encyclopædia Britannica* tells us that in pre-Christian times in Europe, the king or ruler, upon his election, was raised on a shield, and, standing upon it, was borne on the shoulders of certain of the chief men of the tribe or nation round the assembled people. This was called the *gyratio*, and at its conclusion a spear was placed in the king's hand, and the diadem, a richly wrought band of silk or linen, not to be confused with the crown, was bound around his forehead. When Europe became Christian, a religious service was added to the older form, and it was from a combination of the old custom with the religious service that the later ceremonies were developed. The elaborate ceremony carried out at Westminster should be familiar to most readers of this journal because of articles in newspapers and other journals, but also, perhaps, because of the full broadcast of the coronation of His late Majesty King George VI. Significance is attached to every aspect of the coronation ceremony and of the regalia connected with it. In olden times, the anointing of the king was regarded as the most important part of the ceremonial. We recall that in Old Testament times, kings of Israel assumed their kingly office after they had been anointed by one of the prophets. Important as the anointing still is today, the central feature of the coronation service is the Eucharist, during which the sovereign partakes of the consecrated elements. At this service the Queen will, as she herself has declared, rededicate herself to the service of Almighty God and of her people. It is inconceivable that the people will be content to treat this as a spectacle, as something in which they would have no part. Even those of Her Majesty's subjects who do not profess the Christian faith will be bound to recognize that she is performing an act of devotion and that what she does is done from the highest possible motives, and they will interpret her actions in terms of their own particular beliefs. The only possible attitude to be adopted by every one of us is that we should strive to follow Her Majesty's example and determine that our lives shall be lives of service. To do less than this is to be churlish, self-centred and infidel.

Someone gifted with imagination and hope has suggested that the reign of Elizabeth II shall be something like that of Elizabeth I—that with the reign of our present Queen we shall usher in a second Elizabethan era, an era in which the intellectual, spiritual and other attainments of the British people will flourish and lead us to higher planes of excellence. It is commonly conceded that the latter part of the reign of Elizabeth I was in many respects the most brilliant period of English history. And it has been said that in action and study it was an age of giants. When we think of such men of the sea as Drake, Cavendish and Hawkins, we recall the spirit of adventure and the intrepid action of men who seemed to be without fear. Their enterprise appears to have been coloured by curiosity; and even if some of them displayed avarice and were somewhat ruthless, they made great discoveries and brought fame to their Mother Country. In the world of intellectual pursuits there were many things to favour advance. The discovery of printing and the newly acquired freedom with which philosophy and history might be discussed were an incentive whose magnitude it is scarcely possible for us to assess today. There were intellectual giants in those days—Shakespeare, Bacon, Ben Jonson, Spenser, Marlowe and others—and they left behind them an intellectual heritage which has never been surpassed. When people talk today of the advent of a second Elizabethan era, it is not quite clear what kind of an era they would have. The British race, with the rest of civilized humanity, has made tremendous strides in science and in the study of disease. Work of this kind will continue and man's longevity will, no doubt, increase. It is probably not this to which our present-day wishful thinkers look forward. They see the age of Elizabeth I as a colourful period, a period of chivalry and adventure and of intellectual attainments. The present period—the period which we hope will be marked by a long and happy reign of Elizabeth II—if it is to be colourful, will have to use as a groundwork science in the present stage of its development. The spirit of adventure is still needed, and enterprise of the highest order; wholehearted devotion to a cause is also necessary. But in the world of science, not only has the sum total of knowledge become greater; it has been spread over practically the whole globe. A new Elizabethan era in the world of science must be a new era for the whole of humanity, and not alone for the realms of Elizabeth II. In the world of the intellect—in literature

and the arts—much the same kind of statement applies. This does not mean that we should not look for creative minds of gigantic stature in our own Commonwealth of Nations, nor glory in their achievements when we find them; the point is that in all these matters we must have generous minds and not try to live unto ourselves. We know beyond doubt that there will be a new Elizabethan era in which shall dwell righteousness if we will it to be so, if every man and woman in the community gives of his or her best to our own nation and so to the good of humanity. This is an individual matter; it does not depend on legal enactments or prohibitions. Elizabeth I was a woman whose course was not easy, but who did great things for the country that we love. Elizabeth II has youth, she is happily married and has a happy home circle. She stands as a symbol to us, and not the least factor binding us to her is sentiment. This we will maintain, for, as Froude has reminded us, "a nation with whom sentiment is nothing is on the way to cease to be a nation at all".

Current Comment.

MANIC-DEPRESSIVE PSYCHOSIS.

MANIC-DEPRESSIVE PSYCHOSIS is a relatively common condition, the manifestations of which apparently vary little, if at all, throughout the world. Its general features are well known, and an hereditary factor in its production has been widely recognized but not investigated as thoroughly as it might have been. This fact increases the interest attached to a report coming from the Psychiatric Clinic of Karolinska Institutet, Stockholm, of an investigation by Åke Stenstedt of clinical, social and genetic aspects of manic-depressive psychosis.[1] It would appear that conditions in Sweden are particularly favourable for genetic investigations. Parish registers are complete for at least the last two hundred years, so that it is easy to obtain data concerning birth, movements and deaths. Moreover, the relatively small size of the country makes personal examinations by the investigator possible. Stenstedt's study deals with 216 manic-depressive probands (90 males and 126 females) taken from a limited geographical area over a certain period of time, and with their siblings, parents, children and husbands or wives—in all 2325 persons. About a year was spent in psychiatric field examination, and as a result, 72 secondary cases were found (36 in males and 36 in females), making the total number of manic-depressive subjects investigated 288. In 83% of all the cases, the first attack took the form of depression. In 53% of cases, only one attack occurred. This study confirms the findings of previous investigators that manic-depressives have a lower marriage rate than the average population and an increased mortality. The fertility of married patients does not seem to be decreased. As would be expected, the frequency of suicide among manic-depressives was found to be higher than in the general population. Suicide was commoner among men than among women in the group. In the investigation of social conditions among the relatives of manic-depressive patients, Stenstedt adopted more careful methods than previous investigators, of whose findings in this field he is inclined to be critical. Indeed, his findings contrast with those of previous investigators, since they indicate that the siblings and children of manic-depressive probands probably do not deviate remarkably from the average population in respect of social status, and in particular, of marital status, social class and type of occupation. However, he follows the general finding of other investigators in relation to the high incidence of suicide among the relatives of manic-depressive patients. In particular, he found that the frequency of suicide among the brothers and mothers of probands was higher than in the general population.

The genetic investigation produced some interesting information. Among the relatives of the probands, the risk of development of psychoses, other than manic-depressive psychosis, and psychic abnormality could not be shown to deviate from the risk for the general population. Thus, a genetic relationship between manic-depressive psychosis and any other psychosis or psychic abnormality could not be established. On the other hand, the risk of development of manic-depressive psychosis among the siblings, parents and children of the probands, taken together, was 11·7± 1·49% for males, and 11·8± 1·44% for females. Stenstedt states that if the results of previous investigations are considered, together with the results of the present study, it may be assumed that the morbidity risk for manic-depressive psychosis among siblings, as well as among parents and children of manic-depressive probands, is about 15%. This figure is quite striking when it is realized that the total morbidity risk for manic-depressive psychosis in the general population in Sweden is considered to be about 1%, a figure which corresponds with the results of previous investigations from both Denmark and Sweden. Stenstedt discusses in detail the nature of the inheritance, but, in general, the genetic analysis shows that with a high degree of probability, manic-depressive psychosis follows a dominant type of inheritance, possibly a simple autosomal dominant inheritance with inhibition of manifestation. Among the conditions influencing manifestation appear to be certain "disturbing elements" in the probands, and environmental conditions. The "disturbing elements" include deviating personality traits, exogenous factors and schizophrenia-like symptoms; when these entered into the clinical picture of probands' disease, their siblings were found to have a lower morbidity for manic-depressive psychosis than was found among the siblings of purely manic-depressive probands. An analysis of the importance of environmental conditions in childhood in relation to the frequency of manic-depressive psychosis indicated that certain unfavourable conditions might increase the risk for the psychosis among the siblings of the probands. Unfavourable home conditions were considered as including dissolution of the home before the child had attained the age of fifteen years and serious conflicts between the parents. Stenstedt states that the "disturbing elements" and favourable home conditions may be considered to be connected with a decrease in the degree of penetrance.

[1] *Acta psychiat. et neurol. scandinav.*, Supplementum 79, 1952.

INFLUENZA.

No part of the work of the World Health Organization is more important than its investigations into epidemic disease and its plans to control epidemics. Influenza provides a particularly good illustration of this. At present a world network of 55 laboratories in 44 different countries, with many more laboratories cooperating informally, is studying and comparing strains of influenza virus isolated in different parts of the world. This information comes from a statement recently issued by A. M. M. Payne, of the Division of Communicable Disease Services of the World Health Organization. In explaining the basis of the World Health Organization's approach to the problem of influenza, Payne refers to the fact that three main types of the virus of influenza have so far been discovered. The two most important of these, A and B, comprise several subgroups; the subgroups of virus A may differ so much that little or no protection follows infection or vaccination when subsequent infection is by a different subgroup. During an epidemic the virus breeds true within certain limits, that is to say, an outbreak due to one strain of virus A is not related to one due to a different strain, even if it occurs nearby and at about the same time. From time to time new strains appear which may be quite different from previously known strains. Three important points follow from these facts: epidemiological reports can be correctly interpreted only

in terms of laboratory studies of the viruses responsible; successful vaccination against influenza depends on knowledge of the virus causing the epidemic; continuous vigilance is necessary to detect new and potentially dangerous strains at the earliest possible moment.

The world-wide network of influenza laboratories is the World Health Organization's answer to the situation. The work of these laboratories goes on in summer and winter, for new strains may appear during the summer, and the strains causing epidemics during the winter in the southern hemisphere may spread to the northern hemisphere to cause outbreaks there a few months later. Payne states that this apparently occurred during the 1950-1951 outbreak when a strain of A-prime virus isolated in South Africa and Australia during June was found to be identical with one causing a severe outbreak in Liverpool in the following January. This became known as the Liverpool subtype; another simultaneously present in Western Europe was called the Scandinavian subtype. In 1952, laboratories in the network again isolated an A-prime strain (Liverpool subtype) in South Africa in May; the similarity of the circumstances to those of 1950 caused the World Influenza Centre in London to issue in June a cautious warning that there might be an outbreak due to this strain in the coming winter, but that it would quite probably not be clinically severe since partial immunity might have persisted from the 1950-1951 epidemic. From then on epidemic influenza appeared in many areas throughout the world. Payne recounts in some detail the times and places of appearance of influenza and the fluctuations in spread of the epidemics and the strains of virus isolated. The general experience seems to have been that the disease was mild and that comparisons which have been made with the 1918-1919 epidemic were quite unjustified. The viruses responsible for the epidemic have been of the A-prime type and closely related to strains isolated in 1950-1951.

At the time when the statement was issued the epidemic still continued and it was not possible to see the overall picture. However, valuable information is available of the viruses responsible. Payne comments that this is fortunate because several large-scale trials of influenza vaccine had been planned by national organizations in various countries. These would have been of much less value if there had been no epidemic or if the responsible virus had shown unusual characteristics. As it is, important information may be hoped for from these trials both on the effectiveness of the vaccines used and on how best to use them. Unfortunately, as Payne points out, vaccination against influenza produces neither as lasting nor as complete immunity as does, for example, vaccination against smallpox. In control trials in the past the unprotected individuals have been attacked about four times as often as the inoculated, but a number of the latter still become ill with the disease and the degree of protection has probably waned considerably after a year. Payne stresses the fact that the vaccines at present under test lend no hope of being able to eliminate the disease; the best that can be hoped for is to limit the effects of an epidemic by reducing the number of people who fall ill and hence diminish the economic effects of the epidemic which are sometimes serious. All claims of the successful control of influenza must be interpreted in this strictly limited sense. If by control measures the effect of an epidemic of influenza could be reduced throughout the country to one-tenth of what it would otherwise be, that would indeed be a success. It cannot be achieved at present. Several difficult problems must be solved first. The most important is the unpredictability of the influenza virus which shows no stability in nature. An important part of the work of the laboratory network is to keep up with the changes in the virus as they appear, and this, it is hoped, may eventually lead to the ability to forecast epidemics with reasonable reliability. Another problem is that a great deal remains to be learnt about the best methods of producing, testing and using vaccines. For example, a relatively new type of vaccine under test appears to have advantages in the degree and duration of immunity produced, together with economy in the amount of virus needed. If this is confirmed, and the safety of the vaccine proved, it will represent a major advance, but the situation is still experimental. A number of problems arise from the use of influenza vaccines. The whole population cannot be vaccinated each year, and work going on at present is aimed at answering the question of whom to inoculate and when. Another important need is for universally agreed standards of production of influenza vaccine.

In summing up, Payne states that there is good reason to believe that influenza vaccines will play a principal role in lessening the effects of influenza epidemics in the future. However, they offer no hope of eliminating influenza altogether, and indeed further research and careful observations are needed before the best methods of preparation and use of vaccines can be decided. Nevertheless a great deal of research work is in progress, and it may be hoped that solutions to many problems will be found in the not far distant future.

THE FUNCTION OF THE EOSINOPHILE LEUCOCYTE.

SINCE the discovery of the eosinophile leucocyte in 1846 there has been much speculation about its function. It was early deduced that the corpuscle played some part in nutrition particularly in the utilization of protein. The increase in the number of circulating eosinophile cells when certain toxic materials, such as the fluid from hydatid cysts, gained access to the blood led to the belief that the cells could neutralize small amounts of certain toxic substances probably derived from proteins. The association of the eosinophile leucocyte with allergic states and anaphylaxis has long been recognized. Infection with ascaris worms leads to eosinophilia and injection of solid material or extracts of ascaris into guinea-pigs produces eosinophilia.

John Vaughn[1] has used soluble protein-free ascaris extracts for producing eosinophilia. A single injection causes a transient eosinophilia. In this study the histological changes, particularly the distribution of eosinophile cells, have been studied and compared with the changes of histamine-induced eosinophilia, and those of eosinophilia as it occurs naturally in the guinea-pig. The striking feature of eosinophilia in the guinea-pig, however induced, is the presence of large numbers of eosinophile cells in the lungs and intestine. With great regularity these cells appear in the submucosa and mucosa of the intestine, while in the lungs a definite progression of the cells from the blood vessel to the bronchus is a constant feature. In later stages eosinophile cells accumulate in the spleen. In a recent review Code suggested that the function of the eosinophile cell is to carry histamine, particularly from the bone marrow. Eosinophile cells are relatively rich in histamine. Other non-histaminic anaphylactogenic substances have been demonstrated in the lungs of sensitized guinea-pigs with the presence of large numbers of eosinophile cells. Histamine is released in the course of antigen-antibody reactions, the process being fundamentally proteolysis by intracellular trypsins. This, together with the fact that some degree of breakdown of normal, abnormal or foreign protein in the tissues is part of many pathological processes, allows the release of histamine or histamine-like substances to be postulated in most of the clinical conditions associated with eosinophilia in man, for example, post-febrile states, helminthic infections, cancer, therapeutic reactions, allergic states *et cetera*. The intestinal mucosa is rich in histaminase which destroys histamine, so it is logical for the histamine-laden eosinophile cells to pass to this tissue. In the lungs the eosinophile cells are passed from the blood to the bronchi. Eosinophilic infiltration of the lungs has been observed in asthmatic children, in many parasitic infections and in a variety of allergic conditions. It is highly probable that the function of the eosinophile cells is to collect histamine when this is formed in the body and to carry it to the intestine and lungs for disposal.

[1] *Blood*, January, 1953.

Abstracts from Medical Literature.

DERMATOLOGY.

Keratosis Blennorrhagica and ACTH.

R. M. MYERSON AND L. KATZENSTEIN (*J.A.M.A.*, June 28, 1952) state that a close but indeterminate relation to gonorrhœa exists in many, but not all, cases of *keratosis blennorrhagica*. Recently, pleuro-pneumonia-like organisms have been suspected of being causative agents. Another theory is that the disease is a non-specific "reaction pattern" to a variety of stimuli, one of which is the gonococcus. According to Combes, Dietrich and Cohen, the consensus of opinion is that *keratosis blennorrhagica* is an allergic expression of a sensitized skin similar to the conception of the tuberculide reaction. Recently, variable results have been reported with the use of antibiotics. In general, results have been most satisfactory in cases in which there has been an active gonococcal infection. In the authors' case, penicillin, aureomycin, penicillin *plus* aureomycin, typhoid vaccine, cortisone, terramycin and streptomycin were used without improvement. An immediate response occurred to corticotropin therapy on both occasions when it was used; a prompt relapse took place when treatment was discontinued the first time, but after the second course, which was more prolonged and tapered off more gradually, a complete and apparently permanent remission took place.

Parapsoriasis: Its Treatment with Calciferol.

O. CANIZOUS (*Arch. Dermat. & Syph.*, June, 1952) states that he can be sure of only two types of parapsoriasis, the guttate or papular type and the *"en plaque"* or patchy type. In the guttate type, the lesions are pinhead to pea-sized papules, round or oval and clear red. The larger lesions are paler and flat. If scales are present, they are thicker in the centre than at the periphery. The lesions are on the covered parts of the body, on the trunk, arms and thighs. Patients with parapsoriasis *en plaque* present typical yellow to rosy, rounded or oval plaques located on the extremities. The surface is smooth or slightly scaly, and there is no infiltration. Parapsoriasis is notoriously chronic and its resistance to treatment, both local and systemic, is well known. The author discusses the possible relationship of parapsoriasis to tuberculosis. In five of his personal cases there was no previous individual or familial history of tuberculosis. Treatment by ultraviolet irradiation has been advocated for a long time, and the effect of calciferol in parapsoriasis may indicate that the improvement which has followed ultra-violet irradiation is due to activation of provitamin *D* with its subsequent conversion. Calciferol is potentially toxic. The most toxic symptoms are nausea, abdominal pain, vomiting, frequency of urination, thirst, fatigue and weakness. In the author's opinion, calciferol can be used safely with proper clinical and laboratory supervision. Weekly urine examination and blood calcium evaluations were carried out. This study shows that calciferol is definitely beneficial in the treatment of *parapsoriasis guttata* and *pityriasis lichenoides et varioliformis acuta*. Eighteen patients were treated. The best results were obtained in adults with the initial dosage of 150,000 units a day for three or four weeks with subsequent reduction. Of ten patients with the guttate type, six made a complete recovery after one to four months' treatment. Three patients were treated who had *pityriasis lichenoides et varioliformis acuta*, a variety of guttate psoriasis. All responded favourably within six weeks. Of five patients with parapsoriasis *en plaque*, two were cured within six weeks, one was improved and two were unimproved. The author states that the mechanism of action of calciferol is unknown and its effectiveness should not be construed as a point in favour of the tuberculous origin of the disease.

Testosterone for Apocrine Diseases.

T. CORNBLEET (*Arch. Dermat. & Syph.*, May, 1952) states that the remission of apocrine gland disease during pregnancy challenges dermatologists to find the responsible factor and use it in non-pregnant patients with such sweat gland disorders. The important role of hormones and endocrine glands in the gestational process strengthens belief that they also exert a predominant influence over the apocrine glands and diseases. The mammary glands are related developmentally to the apocrine glands. The former and their diseases are sensitive to the administration of testosterone. The author reports cases of patients with diseases of the apocrine glands treated with testosterone. Patients suffered from hidrosadenitis or Fox-Fordyce disease. Testosterone propionate dosage was, for the most part, 25 milligrammes given three times weekly. The author states that the treatment of apocrine gland disease with testosterone requires a prolonged interval to achieve satisfactory results. Even then, relapse may take place, especially in patients with Fox-Fordyce disease. Neither of the patients with the latter condition was cured. The outlook for cure in hidrosadenitis is more optimistic.

Mouse Ringworm.

B. H. BOOTH (*Arch. Dermat. & Syph.*, July, 1952) states that mice are susceptible to infection by dermatophytes, and man, in whom dermatophytoses occur frequently, is occasionally infected by these fungi through exposure to diseased mice. *Achorion quinckeanum* infections are the commonest mycotic infections of mice, and they are not uncommon in Europe and Australia. *Trichophyton mentagrophytes* infections of mice are rare. Favus is a dermatophytosis characterized by the formation of crusts and caused by several varieties of *Achorion*. Man is susceptible to infection by the organisms causing animal favus as well as by *Achorion schönleini*. *A. quinckeanum* is the species which causes mouse favus. The manifestations of *A. quinckeanum* infections in man are circinate, scaling, erythematous lesions known as *favus herpeticus* or *herpes circinatus*. Bloch recognized three fungi capable of producing favus in man: *A. schönleini*, *A. quinckeanum* and *A. gypseum*. Later he described *A. violaceum*, which he cultivated from four human subjects with dermatophytosis. In Australia (Paul) there have been plagues of mouse favus among wild mice. A number of workers who handled stored wheat that had been contaminated by these mice exhibited faviform lesions of the glabrous skin. *A. quinckeanum* was isolated from both mice and men. The occurrence of *Trichophyton* infections in mice with transmission of the organism to man has been described by Parrish and Craddock. Four laboratory assistants were infected from mice; in these persons the infection produced papulo-vesicular rings on the forearms and an eczematoid eruption on the hands. The infection proved to be *T. mentagrophytes asteroides*. The author reports a case of a laboratory technician who developed a rash on her hands, consisting of groups of superficial vesicles, after handling white mice in her work. Many of the mice in the laboratory had areas of hair loss. Cultures on Sabouraud's dextrose agar from the vesicles on the fingers revealed *T. mentagrophytes*. *T. mentagrophytes* granulation was isolated from ten mice with bald spots by inoculation of hair on Sabouraud's dextrose agar.

Facial Granuloma with Eosinophilia.

S. PECK, L. L. PALITZ AND ELLEN REINER (*Arch. Dermat. & Syph.*, February, 1952) report two cases of what appears to be a new clinical entity, facial granuloma with eosinophilia, first described by Cobane, Straith and Pinkus and by Lever and Leeper. This disease is characterized clinically by single or multiple, sharply circumscribed, raised, soft, skin-coloured to purplish-coloured nodular lesions. These lesions are almost completely confined to the face, and are asymptomatic and resistant to therapy, including X-ray therapy. Histologically, the early lesion shows a massive band-like or perivascular infiltrate in the upper and mid cutis, with a preponderance of eosinophile cells. Later there is fibrosis, with a lessening in the number of eosinophile cells, and a gradual proliferation, with intimal and "fibrinoid" changes in the vessels of the upper and mid cutis.

Cortisone and ACTH for Skin Diseases.

B. C. FERGUSON, J. D. ROSENBAUM AND M. M. TOLMAN (*Arch. Dermat. & Syph.*, May, 1952) state that angioneurotic œdema, drug eruptions, exfoliative dermatitis, allergic eczema, psoriasis, pemphigus, scleroderma and dermatomyositis are among the conditions in which improvement has been recorded from cortisone and ACTH therapy. They describe the result of such therapy in a series of their own patients. Each patient had previously received conventional treatment with little or no improvement. Biopsies were taken before treatment when the diagnosis was in doubt. Four of five patients with atopic dermatitis of long duration experienced dramatic relief of symptoms, with concomitant objective improvement within a few days, but an abrupt exacerbation occurred within three days after treatment was discontinued; two subsequently maintained sustained improvement during continued therapy over periods of seven and five months' duration respectively A patient with diffuse scleroderma

showed no clinical improvement. A patient with dermatomyositis had an excellent clinical as well as histological response to each of two courses of cortisone therapy of 51 and 102 days' duration. The response of a patient with exfoliative arsenical dermatitis was striking. A patient with pemphigus responded favourably. During cortisone therapy, a patient with exfoliative psoriasis showed remarkable improvement. A patient with *dermatitis herpetiformis* failed to respond either to parenteral administration of corticotropin or to topical application of cortisone. Slight changes were seen at the periphery of the lesions of a patient with discoid *lupus erythematosus* and subjective relief of itching was experienced. A patient with *pityriasis lichenoides et varioliformis* failed to respond clinically, but four weeks after the completion of a course of cortisone striking clinical improvement was noted.

UROLOGY.

Aluminium Gels and Phosphatic Calculi.

V. F. MARSHALL AND J. L. GREEN (*J. Urol.*, May, 1952) give credit to E. Shorr for his original suggestion in 1945 that aluminium gels could divert most of the phosphorus excretion from the urinary tract to the bowel, and so aid in the re-formation of renal phosphatic calculi. The authors have made a long and careful study of 37 specially selected cases in connexion with this problem. They state that all the patients in this group had a strong tendency to form renal phosphatic calculi. In all patients the amount of tissue damage present, as well as obstruction and infection, should have favourably influenced the tendency to stone growth, but the result was the reverse under the protective influence of the regimen. "Amphojel" in doses of 40 millilitres or "Basaljel" in doses of 30 millilitres after meals and at bedtime was used. The patients followed a diet supplying 1300 milligrammes of phosphorus per day, with 700 milligrammes of calcium per day. Fluid intake was about three litres per day. Antimicrobic drugs and surgical measures were employed according to the usual indications. The average time of patients following this programme was forty-nine months, the longest being ninety-two months. Before prophylaxis was commenced, 78 open operations had been performed on these 37 patients. After the regimen had been instituted, only four operations (on three patients) were performed. Prolonged use of gel therapy has provided no recognizable pathological lesions and no undesirable metabolic effects. The chief difficulty is the tendency of most patients to tire of continually taking this bland medicament, and it often has to be flavoured or taken on cereal. The tendency to constipation should be regularly corrected. Apart from its use with recurrence of renal phosphatic calculi, this regimen has unrivalled advantages as a preventive measure when phosphatic incrustation occurs on vesical drains, catheters and so on. In such cases, impaired renal function or the presence of infection does not lessen its usefulness. Further, the urine may remain alkaline and infested with urea-splitting germs, yet the decrease in phosphate will check stone formation. This regimen does not produce undesirable chemical changes in the urine, as, for example, the increase in calcium output which may occur with the commonly employed acidification measures.

Hypertension and the Surgical Kidney.

A. D. PUPPEL AND E. P. ALYEA (*J. Urol.*, April, 1952) report the results of a detailed study of a group of patients with essential hypertension in association with unilateral surgical renal disease, upon whom a nephrectomy was performed. They have discovered that in any large, unselected group of consecutive hypertensive patients one can expect approximately a 2% incidence of surgical renal disease, but the same incidence will be found in any group of patients consecutively admitted to hospital. Consequently it is considered that a complete urological study is not warranted in all patients with essential hypertension. Such complete examination need only be made if the history, physical examination, laboratory findings and plain X-ray film of the abdomen indicate further study. However, in any group of patients with essential hypertension associated with unilateral surgical renal disease, one can expect a return to normotension in just about one-third following nephrectomy. There must, of course, be a definite surgical indication, apart altogether from the hypertension, before nephrectomy is counselled. Statistics show that it is the young, mildly hypertensive patient who benefits most from nephrectomy.

Diverticulum of the Female Urethra.

T. D. MOORE (*J. Urol.*, September, 1952) publishes a new technique for surgical removal of a diverticulum of the female urethra. He states that these sacs may be congenital or acquired, but the majority seem to be of the latter type; these may be due to trauma of childbirth, to infection of the urethral glands with sealing off of the urethral opening, or to instrumentation, especially deep electrocoagulation of urethral lesions, or they may be secondary to urethral stricture or to a stone. Diagnosis is not difficult if four points are kept in mind: a careful history, a thorough physical examination, urethroscopic inspection and urethrography. These sacs may be asymptomatic unless infection supervenes. The commonest symptoms are terminal dribbling, the appearance of a vaginal mass, pressure on which will cause the escape of urine or pus from the external meatus, dyspareunia and frequency of micturition with dysuria. The opening is usually in the middle third of the canal and in the mid-line, on the floor, but it may be missed on urethroscopic inspection. In this case, urethrography under some pressure is invaluable. For this purpose, the technique of Taylor is recommended. A silk ligature is tied distal (on the eye side) to the balloon of a 20F Foley catheter. Then an orifice is cut in the catheter just proximal to the balloon. The balloon, in the bladder, is pulled snugly back against the internal meatus. Air is forced out of the catheter by the medium to be used, and then the meatus is pinched around the catheter as the urethra is gently distended with the medium. This pinching is best done with an Allis forceps, the patient being under short anæsthesia. The object of surgical treatment is to secure complete excision of the sac and closure of the defect in the urethral wall. The author describes an original technique which has been used since 1944 with uniformly good results. A 16F Foley catheter with the tip cut off is inserted into the sac by a small stab wound in the anterior vaginal wall. A purse-string suture is inserted close to the edges of the vaginal stab, after the balloon has been slightly distended. The site of the insertion, including the purse-string suture, is then isolated by an elliptical incision through the vaginal mucosa. The balloon not only converts the sac into a semisolid tumour, but also permits traction, facilitating the dissection. If a sound is lying in the urethra, the ostium of the sac is easily recognized when it is cut across, and this facilitates its accurate closure. The periurethral tissues are then closed, and finally the vaginal mucosa. A Foley catheter is left in the urethra to drain the bladder for a week. A vaginal pack dusted with sulphonamide is left in place for two days.

Renal Neoplasms.

C. L. DEMING (*J. Urol.*, January, 1953) has made a study of the renal neoplasms treated during the past twenty-five years at his clinic in the Yale University School of Medicine. They have records of 132 consecutive cases in that period, all with complete histological study, and all with follow-up to the death of the patient or to the present date. The overall control of the disease by nephrectomy is only 9%. The author states that this is humiliating, but it is not too bad when the figure is compared with lung cancer at 2%, gastric cancer at 6% and prostatic cancer at 5%. The author feels that in the past our conception of control of renal neoplasms has been far too optimistic. The only true determination is the complete follow-up of each case. The author does not place much credence on the difference between a granular cell and clear cell "hypernephronic" (renal carcinoma), because both kinds are lethal if not removed. Tumours of all kinds vary in degree of malignancy, and patients vary in their defence to malignant growths. To take up the challenge of this very serious disease, the author reiterates the problem of early diagnosis and the baleful habit of purely "symptomatic" treatment of hæmaturia, both by patients and by medical men. He states that the percentage of control of this disease must be raised. The author thinks that it is possible to use radioactive isotopes to determine the presence and position of metastatic transplants in lymph glands and peritoneum. Diiodofluorescein is an isotope that has special affinity for epithelial tumours, nerve tumours and sarcomata. The technical procedure is not difficult, and adds only a few minutes to operating time, so that extrarenal tissue involved is recognized and can be removed.

Special Articles for the Clinician.

(CONTRIBUTED BY REQUEST.)

LXIV.
COUGH AND SPUTUM.

COUGH is man's commonest symptom. It occurs in many conditions which are of no serious consequence, such as common colds or mild pharyngitis due to excessive cigarette smoking. It may be, and frequently is, an early symptom of serious respiratory disease such as tuberculosis or cancer of the lung. From the very fact that it is such a common symptom, only too often it is ignored, or considered of little significance, with the result that serious conditions which may be amenable to treatment if diagnosed early get out of hand before their presence is recognized. Any persistent or recurrent cough merits careful investigation, and the clinician must ever be on guard. An elucidation of its cause is necessary if treatment is to be rational and successful.

Some coughs are of serious import; others are not. A young man was examined because of cough. He was told it was "only a healthy cough". He was not satisfied and consulted another doctor, who had sputum examined and a chest X-ray examination made. The sputum contained tubercle bacilli, and the X-ray film showed infiltration of the lung. A young woman, about to be married, consulted her doctor because of a cold. She was examined and told there was nothing to worry about, "it was only a cold". She married and returned a little later with a three months' pregnancy and active pulmonary tuberculosis, from which she died.

Few people escape the common cold, which is responsible for an enormous amount of minor illness and loss of productive working time. It is hardly practicable to submit every patient who comes complaining of a cold to full clinical, bacteriological and radiological examination. But it is bad practice to advise such a patient that it is only a cold and there is nothing to worry about. Far better to give some reassurance and simple treatment, but to insist that the patient return for further investigation if the "cold" has not cleared in a reasonable time, say, two or three weeks. This is very important in view of the fact that so often the more serious conditions start in just this way. Moreover, the common cold itself may lead to complications in both upper and lower parts of the respiratory tract and should not be too lightly treated.

Coughing may or may not result in the production of sputum, which for practical purposes may be described as a discharge from the respiratory tract. This discharge may be nothing more than an excess of mucus due to a minor irritation or inflammation of the lining membrane of the respiratory tract; but in more severe inflammations there may be an admixture of pus or blood.

Sometimes the diagnosis is almost obvious at the outset. A history of cough persisting over a long time and perhaps originating in an attack of measles, pertussis or pneumonia, accompanied by intermittent discharge of a large amount of sputum often blood-stained, and occurring in a patient who is not acutely ill and who has lost little or no weight, is very suggestive of bronchiectasis. One can almost make a "spot" diagnosis of this condition in a child who has a loose "through a bubble" cough, which has gone on for a long time. These cases are often associated with antral infection. It is surprising the number of young people with symptoms of this sort, who have been under medical care perhaps for years, and who have never had their upper air passages investigated. Often the parents are told that "it is only bronchitis, the child will grow out of it". The unfortunate fact is that the tendency is not for the child to grow out of it, but rather to grow into a state of chronic bronchitis or bronchiectasis unless something is done to correct the pathological condition in the upper air passages. Bronchiectasis once fully established is a difficult condition to treat successfully, despite the best efforts of physician or surgeon. Many of these cases could be prevented if attention was directed to the upper air passages in the earlier stages. Noses were given to breath through, so that inspired air is filtered, warmed and moistened before it goes to the lungs. A healthy upper airway is a priceless asset in protecting the more delicate structures of the lower air passages. An unhealthy upper airway is not an asset, but a liability, in that infections are carried to the lower passages, causing repeated attacks of bronchitis or pneumonia and often leading to bronchiectasis.

Again, the diagnosis may be fairly obvious when a patient comes complaining of cough with loss of weight, anorexia, tiredness and perhaps a history of pleurisy, hæmoptysis and contact with an "open" case of tuberculosis.

But all diagnoses are not so easily established, and the fullest investigation may be necessary to determine the underlying cause of the symptoms.

What should be done with patients who come complaining of cough with expectoration? Clearly a careful history should be taken, and a full clinical examination made. If these provide no satisfying evidence, what next? Clinical acumen and judgement are needed and the responsibility in the first place will rest on the clinician, who must decide whether anything more, and what, should be done to establish a diagnosis. It is clear that in many cases the assistance of specialist workers, the ear, nose and throat specialist, the radiologist, the bacteriologist, and perhaps the bronchoscopist, will be needed. But the clinician should not be content to rely solely on such assistance for a diagnosis. Accurate observation and sound clinical judgement are still of value in medicine.

Mantoux Test.

A Mantoux test is a simple matter and will often give information of the greatest value. Failure to react to a properly carried out test is strong evidence against tuberculosis; and there are few exceptions to this. A reaction to the test means only that the patient has been infected with *Mycobacterium tuberculosis* at some time. It does not mean that he is suffering from active tuberculosis; but the possibility cannot be safely ignored.

A young woman with an early pregnancy suffered from a respiratory infection. X-ray examination showed a patchy upper lobe consolidation. Despite failure to react to a Mantoux test, she was diagnosed as suffering from pulmonary tuberculosis. The pregnancy was terminated, and the patient kept at strict bed rest for three months. At this time a further Mantoux test was carried out with O.T. 1:100 dilution. There was no reaction whatever, and an X-ray examination showed a completely normal chest. Proper attention to the original test would have saved the patient from an unnecessary abortion, and her family from a lot of worry and expense.

Another young woman suffered from what appeared to be influenzal bronchopneumonia, which ran on for about three weeks. X-ray pictures taken at a few days' interval showed an increasing amount of patchy consolidation in both lungs. A diagnosis was made of rapidly advancing tuberculous bronchopneumonia, and the prognosis was given as hopeless. A Mantoux test performed at this stage produced no reaction whatever, even to O.T. 1:100 dilution. The patient made a rapid recovery, and a month later an X-ray examination showed a normal chest.

In most chest clinics Mantoux testing is performed as a routine. It might be a good thing if a similar practice was introduced into doctors' private consulting rooms.

The Sputum.

Having taken a history and made a physical examination and perhaps performed a Mantoux test, the clinician must pay attention to the sputum. A macroscopic examination may give useful information. There are certain essential facts in regard to the importance of pathological secretions in diseases of the chest which should be borne in mind. The amount, colour, consistence, odour, reaction and general characteristics of sputum should be noted. The amount expectorated in twenty-four hours may assist in diagnosis and also in estimating the patient's progress in conditions such as lung abscess, tuberculosis and bronchiectasis. Sputum is ordinarily alkaline in reaction; acidity is suggestive of admixture with gastric contents.

Quantity.

Large amounts of sputum are common in cases of bronchiectasis and of advanced tuberculosis with cavitation. With bronchiectasis, discharge of sputum is apt to occur in bouts when the dilated bronchial tubes are emptied. With tuberculosis, expectoration is likely to be more continuous. Cough with expectoration is not as a rule one of the early symptoms of tuberculosis; usually it indicates more advanced stages of the disease. Excessive amounts of sputum may occur in other conditions, such as acute pulmonary œdema and unusual forms of bronchitis.

Some patients say that they bring up sputum without coughing. It is probable in these cases that sputum comes up with a minimum of effort on the part of the patient. In other cases, cough is severe, and little or no sputum is produced. These are the cases in which examination of gastric contents may be indicated. This form of examination undoubtedly is important; but there is a tendency for it to be overdone. It is an unpleasant form of investigation. If the clinician wishes to retain his private patient, he will not have recourse to this method too often. If it is used, it is

imperative that the most scrupulous care is exercised in seeing that stomach tubes are sterile. Sputum obtained direct from the air passages or by a laryngeal swab is better for bacteriological examination than that mixed with gastric contents.

General Characteristics.

The macroscopic presence of blood should be noted, and never treated lightly. The various causes of hæmoptysis must be borne in mind and every effort made to arrive at a correct diagnosis. The "rusty" sputum of pneumonia is characteristic.

The colour of sputum, in the absence of blood, depends largely on the number of pus cells present. It may be variously described as mucoid, mucopurulent, or purulent. In bronchitis, depending on its severity, the sputum may be frothy, mucoid or muco-purulent. The so-called nummular sputum of phthisis is due to the larger admixture of pus cells.

In lung abscess, the sputum may be almost pure pus. In bronchiectasis, sputum on standing tends to separate out into three layers, the top layer of whitish froth, the middle layer of fluid, and the lower of mucopus or pus. The odour may be unpleasant, but is seldom so offensive as in lung abscess or gangrene, or from an empyema communicating with a bronchus.

Mycotic infections of the lung are comparatively rare in Australia or perhaps are overlooked. The presence of small yellowish granules may point the way to a diagnosis of actinomycosis. Hydatid disease is comparatively common, and the first indication may be the finding of hydatid elements in the sputum. A case comes to mind in which a strong, healthy-looking man, a greyhound fancier, suffered a large pleural effusion, which slowly absorbed. A few months later he had a frank hæmoptysis. Tuberculosis was suspected, but his appearance rather belied this. He was asked to collect all sputum produced over the week-end. On the Monday morning the diagnosis was made evident by the finding of daughter cysts in the sputum mug. I recall my student days and never forget the sight of that great teacher, the late Sir Joseph Verco, stirring a beaker full of purulent sputum with a glass rod in a search for daughter cysts. Certainly this is not a very pleasant pastime, but sometimes it pays dividends.

Small cretaceous particles may occur in the sputum. These usually come from old calcified tuberculous lesions, but they may come from calcified hydatid cysts. An inhaled foreign body may be coughed out in the sputum. A patient came from the country with a diagnosis of pulmonary tuberculosis. She had a cough following dental extraction under general anæsthesia. She had coughed up what was no doubt a tooth fragment. X-ray examination showed an apical cavity. She was "Mantoux-negative", and no organisms were found in the sputum. Nature cured the condition in a few weeks.

Bacteriological Examination.

Having exhausted the possibility of finding evidence of value by macroscopic examination of the sputum, the clinician naturally will invoke the aid of the bacteriologist, who is the only one who can give exact information concerning the bacterial flora of the sputum. This is an essential part of the examination in every case in which there is a persistent discharge of sputum. In addition to bacteria, the laboratory worker may be able to demonstrate elastic fibres, eosinophile cells, parasites, and various forms of crystals, spirals *et cetera*.

One of his most important tasks will be the search for tubercle bacilli, the finding of which is the only actual proof of active tuberculosis. As well as examining stained smears, no doubt he will use concentration methods, cultures and animal inoculations. If the results of these are all persistently negative, some cause other than tuberculosis should be looked for.

The bacteriology of respiratory infections is not on a very sound basis. It is not easy to be sure that organisms found in the sputum are the real cause of the illness rather than superadded infections or perhaps contaminants. The emphasis on virus infections in these times also complicates the picture. Fungi may be found, but here again it is difficult to be sure that they are causal agents.

Examination for cancer cells is a highly specialized matter.

Differential Diagnosis.

In elucidating the cause of cough with sputum, the clinician may have no easy task. He must keep in mind the whole of the respiratory tract, and not just one part of it. Many cases of repeated respiratory infection or chronic cough are dependent on upper airway infection. There is a tendency on the part of some ear, nose and throat specialists to look no further than their own special field, just as there is a tendency for some physicians to forget about the upper respiratory tract altogether. A patient was sent into hospital by a chest physician for termination of pregnancy because of pulmonary tuberculosis. She did not have tuberculosis, but had bronchiectasis associated with antral infection. A young man in his earlier years suffered eight separate attacks of pneumonia. His chest X-ray film was clear, and Mantoux test result negative. Later it was established that he had gross antral infection, and surgical treatment was advised. He refused this, and at the outbreak of World War II he volunteered for active service. After full clinical examination and chest X-ray examination, he was enlisted in the Australian Imperial Force and had two years' service overseas. He returned a physical wreck, thin and pale, with a persistent cough and advanced arthritis. No doubt he failed to disclose to the examining medical officer details of his past history. A chest X-ray examination cannot be expected to show every abnormality of the respiratory tract.

Radiological examination, of course, is an indispensable part of the examination for chest diseases. In the early stages of the war in one month eight men went to enlist, all thinking that they were completely well. They had the common symptom of "cigarette cough". All passed the medical examination, but were "picked up" by X-ray examination. In each case the harmless-looking mucoid sputum coughed up in the morning was found to contain tubercle bacilli.

Cancer of the lung is on the increase. The sputum may be blood-stained, but has no characteristic macroscopic appearance. Suspicion usually is aroused by the X-ray appearance. Bronchoscopy may clinch the diagnosis, and in expert hands cytological examination of the sputum or bronchial washings is becoming an increasingly valuable method of diagnosis. In the last resort exploratory thoracotomy should be performed.

Assessment of the respective roles played by allergy and infection in diseases of the respiratory tract is not easy. No doubt many conditions are pure allergies. But interference with drainage caused by swollen mucosa predisposes to infection, and so arises the composite picture which may be difficult to deal with.

D. R. W. COWAN,
Adelaide.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on December 5, 1952, at the Saint George Hospital, Kogarah, New South Wales. The meeting took the form of a series of clinical demonstrations by members of the medical and surgical staffs of the hospital. Part of this report appeared in the issue of May 16, 1953.

A Case of Unusual Laryngeal Ability.

DR. FRANK ELLIS, in conjunction with DR. G. C. WILSON, showed a girl, aged eighteen years, who had been in good health all her life and, in fact, now had no complaint whatever. In her early childhood her mother had noticed that she would often make a whistling sound with her throat whilst sleeping. Later, at the age of five or six years, she had found that she could make that sound when conscious, and she developed it until she was able to whistle a tune. She came under notice with a slight post-nasal discharge, which was found to be due to adhesions and pockets in the post-nasal space. The tonsils and adenoids had been removed some years previously. The adhesions were broken down, and she had no more trouble with the discharge. Each time she was seen, she was able to entertain her listeners by whistling several tunes, which appeared to come from the throat. A stethoscope placed over the larynx made that fact obvious. The larynx, when examined by the laryngeal mirror, looked perfectly normal, except that the ary-epiglottic folds seemed very well developed. After numerous examinations and having the patient whistle whilst the larynx was being inspected, the opinion formed was that the whistling was carried out with the following technique: she controlled the tracheal air column in the usual way, but by voluntary control was able to approximate the edges of the ary-epiglottic folds to the tubercle of the epiglottis to make a narrow triangular chink; the chink could be varied at will to enable her to whistle quite clearly and distinctly such tunes as "Roll Out the Barrel" and "Walking My Baby Back Home" from start to finish.

Syphilitic Aortitis.

DR. B. HANEMAN showed a man, aged forty-seven years, a carpenter, who had complained of tiredness, shortness of breath on running and lifting, and cough for some years with a minimal amount of white sputum. He had no orthopnœa and no ankle swelling. In the past eighteen months he had been getting anginal pain on walking up an incline. It had an upper sternal distribution and was relieved by trinitrin. Investigation of the family history revealed that the patient's father had died of pneumonia at the age of thirty-six years, and his mother had died of heart trouble and "dropsy" at the age of sixty years. There was no known history of rheumatic fever. The patient had never been treated for venereal disease. On examination of the patient he was found to have considerable pallor of the face, a pronounced systolic pulse in the neck and a heaving apex beat displaced downwards and outwards. No obvious thrill could be felt. A to-and-fro murmur was audible at the aortic area, transmitted into the neck and down both sides of the sternum. A mitral diastolic murmur of the Austin-Flint type was present. Bronchial breathing was audible at the apices of both lungs. The pulse was accelerated and collapsing in type. The blood pressure was 160 millimetres of mercury, systolic, and the diastolic pressure was apparently nil. Corrigan's sign was present. A minimal amount of ankle œdema was seen. No abnormality was detected in the central nervous system or other systems. Wassermann and Kahn tests on the blood produced positive findings. X-ray examination revealed enlargement of the aorta and of the left ventricle of the heart with involvement of both apices of the lung, possibly by tuberculosis. The electrocardiogram revealed left axis deviation. No acid-fast bacilli were found from sputum examination and gastric lavage. Treatment was instituted with iodides, penicillin, bismuth and arsenic; but in the two and a half years that the condition had been diagnosed, no objective change in the patient's condition or in the Wassermann reaction was apparent. The patient was working as a carpenter.

Aneurysm of the Abdominal Aorta.

DR. N. MANION presented a woman, aged sixty-two years, who had first attended for examination on September 17, 1952. She had then the following presenting symptoms: a burning feeling in the epigastrium, present intermittently for three months, occurring about thirty minutes after meals and relieved by alkali; nausea, but no vomiting; anorexia for six months; loss of weight to the extent of three stone in the last eight years and about one stone in the last six months; swelling of the face and eyelids occurring for months intermittently. She had undergone appendicectomy at the age of eighteen years and cholecystectomy at the age of fifty-three years. On examination of the patient, a large, firm, pulsating mass was felt in the epigastrium, and the edge of the liver was palpable about one inch below the costal margin. The blood pressure was 210 millimetres of mercury, systolic, and 140 millimetres, diastolic. The heart was not enlarged clinically, and the sounds were normal. No abnormalities were found in the lungs or central nervous system. X-ray examination of the stomach with a barium meal showed a pressure defect, which was seen on the lesser curvature side when the patient was in the prone position, but disappeared when the patient was in the erect position. The defect involved the stomach, duodenum and colon. Some obstruction was present in the third part of the duodenum. Calcium deposits outlined the mass extending inferiorly as far as the fifth lumbar vertebra. Evacuation of the stomach was not delayed, the head of the meal being in the transverse colon at the end of five hours. The colon was displaced by the mass but clearly extrinsic to it. The findings were regarded as consistent with the presence of an abdominal aneurysm. Wassermann and Kline tests on the blood produced negative findings. The patient was treated symptomatically with phenobarbitone and an antacid preparation with complete relief. It was considered that the swelling of the face was apparently an allergic condition which occurred after the eating of certain foods, such as tomatoes.

Carcinoma of the Liver.

DR. A. C. THOMAS presented a woman, aged sixty-seven years, who had been admitted to hospital at 11.30 p.m. on September 29, 1952. At 7 a.m. on the same day she had suddenly experienced severe, right-sided abdominal pain, colicky in nature and persisting for about twelve hours. She vomited at the onset of the pain, the vomitus being greenish-brown in colour, and on several occasions during the morning. The pain had decreased in severity from 7 p.m. and was not present when the patient was admitted to hospital. In December, 1951, she had undergone an operation for acute appendicitis. At operation, subacute appendicitis was found with a large Riedel's lobe of the liver with mild cirrhotic changes. The gall-bladder and bowel were normal. On examination on admission to hospital on the present occasion, the patient was found to have a dry, coated tongue. A hard, tender mass was palpable on the right side of the abdomen, measuring about three inches by two inches and fixed to the posterior abdominal wall. The remainder of the abdomen was soft and not tender. Bowel sounds were much in evidence. No abnormality was detected on rectal examination or on examination of the cardio-vascular, respiratory and central nervous systems. Provisional diagnosis was made of carcinoma of the ascending colon, with chronic obstruction. An enema was given with a good result, and it was decided to observe the patient. On the next day the patient had no pain or vomiting. X-ray examination after the barium enema revealed no obstruction to the flow of barium through the large bowel, but the caecum and descending colon were very difficult to define, as they appeared to be displaced medially and backward by a large mass in the right iliac fossa. The mass appeared to be outside the bowel. On October 9 it was noted that the mass appeared to be increasing in size. At operation on October 13 a large, irregular tumour was found attached to the lower edge of the liver. No evidence was found of malignant change in the stomach, bowel, pancreas, ovaries or uterus. The tumour was excised from the liver, and the patient had an uneventful convalescence. The pathologist reported that the tumour was a carcinoma. The histological structure was consistent with a primary carcinoma of the liver, and the great difference in size and arrangement of cells suggested an origin from liver cells rather than a bile duct origin. The pathologist considered that a secondary deposit from a renal carcinoma could not be altogether excluded, but he thought that that was unlikely.

Hernia Uteri Inguinalis in a Male.

DR. G. F. ELLIOTT presented a boy, aged fifteen years, who had been admitted to hospital for operation for a recurrent right-sided inguinal hernia. He had been operated upon elsewhere for a right inguinal hernia some eleven years previously. There was nothing else of significance in his previous history. Examination of the patient revealed a reducible right inguinal hernia. The left side of the scrotum was empty, and no sign of the left testis could be detected in the inguinal canal. The right testis was noted to be rather higher in the scrotum than usual. At operation, in the posterior portion of the hernial sac was found an infantile uterus with an obvious fimbriated tube situated at the upper edge of a small but definite broad ligament, from which was suspended a smooth, ovoid, pale yellowish body about one inch by half an inch in size. The right testis was elevated from the scrotum and examined. It appeared to be normal. Nothing resembling a vagina was found. After operation, excretion pyelography demonstrated normal renal tracts on both sides and the 17-ketosteroid estimation was normal. Dr. A. E. Gatenby reported that histological study of the ectopic tissue showed that the uterus was a well-developed structure with fully developed endometrium. The structure of the Fallopian tube was definite, but of infantile type, with a thin mucosa showing only rudimentary folding. Examination of sections of the ectopic gonad showed it to be a testicle of rather more mature histological structure than was usually seen in cryptorchids. It consisted of comparatively well outlined tubules containing mainly sustentacular cells and a few spermatic cells. The vas consisted of a tortuous tube with a continuous mucosal lining of pseudostratified ciliated epithelium and incompletely demarcated muscle layers.

Solitary Cyst of the Liver.

Dr. Elliott's second patient was a woman, aged seventy-seven years, who had been admitted to hospital in February, 1952, with a history of vomiting for three days and abdominal pain for two days. Vomiting had begun suddenly and was frequent. The pain had been sudden in its onset, situated in the right side of the abdomen and radiating to the midline but not beyond. It was relieved by the taking of brandy, but any movement brought it on again. The bowels had not been opened since the day of the patient's admission to hospital, when she had three motions following the taking of an aperient on the previous night. She had suffered from indigestion for twenty years, with much belching, but had not had jaundice. She had had a goitre for twenty years, for which she had had radium treatment. On examination of the patient, the abdomen was found to be distended, tender and guarded, particularly on the right side, where a rounded mass could be felt. Bowel sounds

were exaggerated. At operation, a large, thick-walled, smooth, solitary cyst was found. It was attached to the right lobe of the liver, medial to a small, normal gall-bladder, which it obscured. From it, five and a half pints of thin, somewhat turbid fluid were aspirated. As much as was practicable of the now collapsed cyst was excised, and the remainder was drained by a large tube and marsupialized. The tube was removed after four days, and the patient was discharged from hospital in March, 1952, still with a slight discharge from a sinus. The pathologist reported that the cyst was lined, for the most part, by shaggy fibrous tissue containing cholesterol clefts, inflammatory cells and organized clot projecting into the lumen of the cyst. In one area, some residual lining epithelium, consistent with bile duct epithelium, could be seen. He said that the cyst would appear to be a bile duct retention cyst that had undergone hæmorrhage and inflammation. The fluid from the cyst was found to contain numerous pus cells, organisms and cholesterol crystals. The organisms were made up of numerous Gram-positive cocci, Gram-negative bacilli and occasional Gram-positive bacilli with yeast cells.

Malrotation of the Midgut.

Dr. Elliott then presented a male child who had been admitted to hospital in April, 1952, at the age of six weeks with a diagnosis of pyloric obstruction. It was stated that he had been well until one week before the time of his admission to hospital when he began to vomit part of his feeds. It was noted that there was no bile in the vomit. In hospital, projectile vomiting was observed and peristaltic waves were seen moving from the left to the right in the upper part of the abdomen. No mass could be felt in the abdomen. The child was somewhat dehydrated. At operation, a condition of malrotation of the midgut was found, with a membrane running from the right para-colic gutter and obstructing the duodenum. The membrane was divided, and the child was eventually discharged from hospital, well.

Meigs's Syndrome: Ovarian Teratoma.

Dr. Elliott's last patient was a woman, aged seventy-three years, who had been admitted to a medical ward in August, 1951, with a history of swelling of the abdomen for about two and a half years, shortness of breath and swelling of the ankles for one year, and a much shorter history of "blackouts with a falling sensation". She had had no children. She had had her appendix and a cervical polypus removed many years previously. Examination of the patient at the time revealed obvious ascites without enlargement of the liver or spleen. No œdema of the ankles was present, but there was considerable dulness on percussion at the base of the right lung. *Paracentesis thoracis* yielded 38 ounces of fluid on September 7, 1951, and 50 ounces on September 24. She was examined in consultation by another physician, who considered the condition to be congestive cardiac failure, and by a gynæcologist, who considered that there was no evidence of a pelvic or retroperitoneal tumour. She was discharged from hospital in October, 1951, with a diagnosis of hypertensive cardio-vascular disease. She was readmitted to a medical ward in March, 1952, with a history that since discharge from hospital she had been in and out of bed, never very well at any stage, very breathless on exertion, and feeling weak and tired. She had had three "heart attacks", in which she fainted but had no associated pain. The ascitic fluid had not been removed, the patient stating that it seemed to vary in amount from day to day. The pleural cavity had been tapped three times, yielding three pints on the last occasion eight days before her admission to hospital. *Paracentesis thoracis* on three occasions during the next few weeks yielded 68 ounces, four pints and 28 ounces of fluid respectively. An electrocardiogram was found to be within normal limits, as was the venous pressure. Bronchoscopy revealed much clear, watery fluid in the lower bronchial branches but no definite evidence of malignant change. Further *paracentesis abdominis* yielded 122 ounces of fluid on April 9, 1952. Examination of the ascitic and pleural fluid revealed the presence of no pathogenic organisms and no cells suspicious of malignant disease. The specific gravity of the pleural fluid was 1010, and of the ascitic fluid 1008. Numerous X-ray examinations revealed no obvious pathological changes in the lungs. On April 30, at laparotomy, the uterus and both tubes and ovaries were removed. Three weeks later the patient was discharged from hospital with no fluid in the abdomen or chest, but in poor general condition. However, since her discharge from hospital she had gained 18 pounds in weight. The pathologist reported that the tissue removed consisted of a uterus measuring one and a quarter by one and three-quarters of an inch in size with tubes and ovaries. The left ovary and tube were very small and fibrous, but were not examined microscopically. The right ovary contained a lobulated tumour consisting of solid papillary and cystic areas. It was approximately four by two and a half by two and a half inches in size and had a tube coursing across one surface. No residual ovarian tissue was recognizable. One of the cystic areas contained hair and cheesy material. Two pieces of the cyst and two pieces of the solid area were examined microscopically. This showed the tumour to be an ovarian teratoma. One part of the tumour was cystic and contained dermal elements (dermoid cyst), the other part of the tumour was solid and was composed of well-developed thyroid tissue, which in places had a colloid adenoma pattern, and in other places consisted of diffuse areas of thyroid alveoli devoid of colloid. There was no histological evidence of frank malignant change, but such a tumour could easily occur locally and might possibly give rise to a distant metastases.

(To be continued.)

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

ASSUMPTION OF TITLES.[1]

[*Australian Medical Journal*, December, 1866.]

To the Editor of the Australian Medical Journal.
Sir,

At some future time perhaps I may say a good deal upon the bad taste, to say the least of it, in those members of the profession who, being neither doctors of medicine, bachelors of medicine nor physicians, yet write themselves "Dr.". In London, if you were to address a member or Fellow of the College of Surgeons as "Dr." he would either regard you as very ignorant or very insolent. At this side of the world we seem to have changed all that. I was present at Lady Manners-Sutton's "At Home" the other day and heard surgical gentlemen announced as "Dr." so-and-so who have no more right to the title of "Dr." than I have to that of Grand Llama. As their names were read off their own cards there could be no mistake on the part of the attendant. I do not know what is the general opinion of this kind of assumption, but I regard it as rank snobbery.

Yours obediently,

SINAPIS.

Correspondence.

THE EFFECT OF INTERRUPTED COURSES OF CHLORAMPHENICOL ON THE RELAPSE RATE IN TYPHOID FEVER.

SIR: I was interested to read in the "Current Comment" pages of May 2, 1953, about the effect of interrupted courses of chloramphenicol on the relapse rate in typhoid fever, but was disappointed that no figures for dosage and days of administration were given. I may be allowed to comment on your Comment.

1. "Three of the 40 patients died early while treated with chloramphenicol." Is it not probable that this was due to too great initial doses of the drug as a result of which the body was flooded by the liberated endotoxins causing hyperthermia or peripheral circulatory failure with hypothermia, terminating in death on the first or second day of the treatment? J. E. Minkenhof and other workers (1952) advise therefore to start with one and a half to two grammes on the first or first two days, dependent on the reaction of the patient, and to continue with three grammes daily. Children and thin adults get 50 milligrammes per kilogram of body weight.

2. "The relapse rate is highest when chloramphenicol is withdrawn soon after pyrexia has subsided." Other workers

[1] From the original in the Mitchell Library, Sydney.

do not agree with this. It appeared that not only did the relapse develop at the same time as in the untreated cases, but also that a great percentage of the patients who came under treatment in an early stage of the disease got a relapse (Minkenhof *et alii*, 1952; Picard, 1950); however, certainly not more frequently when given the so-called short course, in which the drug is administered until the patient is free of fever for twenty-four hours. This course will take only three to six days, as the patients are free of fever within two to five days, independent of the stage of the disease. Minkenhof states that from 35 patients, treated for six to fourteen days, 11 suffered a relapse, from 15 patients, treated with the short course of three to six days, only three. The longer duration of the course did not appear to be of any importance here, so that the less expensive short course will suffice.

3. Reilly *et alii* (1950, 1951) were able to elucidate why continued courses of chloramphenicol were useless and pointed out how the early relapse could be prevented. They found in experimental infections of animals a rapidly developing central necrosis of the mesenteric lymph nodes. The typhoid bacilli may remain in these necrotic areas, inaccessible to the antibiotic, and not until three or four weeks after the onset of the illness, when these necrotic areas have been vascularized, will the bacilli again appear in the circulation and cause a relapse. Therefore, in a similar way as J. E. Smadel did in scrub typhus, Minkenhof gave in cases of typhoid fever in the fourth week of the disease, from the twenty-sixth up to and including the twenty-eighth day, three grammes of chloramphenicol daily. He observed in 25 cases, treated in this way, only one late relapse. As the relapses in paratyphoid fever may come earlier, it might be advisable to give the after-course in this disease some five days earlier. The number of patients here is just as in the series stated by you too small to be sure that this short after-course will suffice, and, further, disappointment will occur as it is often difficult to ascertain the first day of the illness. Also late relapses cannot be prevented by administration of the drug in the fourth week of the disease.

Yours, etc.,

143 Bellevue Road,
Bellevue Hill,
New South Wales.
May 5, 1953.

D. VAN DER POORTEN.

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HYPERPLASTIC CYSTIC DISEASE OF THE BREAST, WITH A REVIEW OF 199 CASE RECORDS.

SIR: Dr. James Yeates's excellent article entitled "Hyperplastic Cystic Disease of the Breast" gives a very readable description of this entity, and I presume expresses the latest approach to this problem.

In his review of 199 cases treated surgically, he condemns with faint praise the surgeons who treated 16 of the cases by radical mastectomy.

Those doctors who received their training about the period of World War I will recall that it was commonly taught that "chronic mastitis", as the condition was then called, particularly when occurring in the middle-aged or elderly, should be regarded as a premalignant condition.

The present-day general use of a biopsy should eliminate the possibility of a malignant condition being missed; but the pathological report is not infallible, and a general practitioner with wide experience will meet with cases where a biopsy or local excision has been followed by malignancy.

I can recall the case of a woman in her sixties who was treated to a local incision, was given a favourable pathological report, and within two years had an extensive fungating ulcer in place of the breast concerned.

A younger woman in the late thirties was treated in the same way and shortly returned with pain in the back—secondaries in the vertebræ.

It may be old-fashioned and illogical to think that surgical interference with the breast does hasten the spread of cancer cells; but one does meet with instances which support such a view. At the present I have under my care a woman who had a radical mastectomy done by an eminent surgeon; glands were not present in the axilla, and the pathological report was favourable, yet she has now secondaries in the spine.

Dr. Yeates would be doing a real service, and perhaps deal a death blow to the two above old-fashioned beliefs, if he were to supplement his article by conducting a follow-up of the 199 cases, and give statistics as to the subsequent health of the patients.

Yours, etc.,

153 Wycombe Road,
Neutral Bay,
New South Wales.
May 5, 1953.

G. GALL.

SOME OBSERVATIONS ON THE USE OF "BREVIDIL E", A NEW MUSCULAR RELAXANT, IN ELECTRO-CONVULSIVE THERAPY AND A COMPARISON WITH "SCOLINE".

SIR: I feel that I cannot let the correspondence by Dr. R. Ramsay Webb pass without some comment.

When I originally wrote the article on "Brevidil E" and "Scoline" about six months ago I had only used "Brevidil E" in about twenty cases, the total amount of the drug that Messrs. May and Baker could supply. Since that time I have used it in quite a number of cases, and have noted the following facts.

1. The period from injection to maximum relaxation is, in the same patient, from fifteen to eighteen seconds both for "Brevidil E" and "Scoline". There seems to be little difference in rate of onset between the two drugs. That is, of course, in a patient under thiopentone sodium.

2. Duration of action. Very slightly less for "Brevidil E" than "Scoline", never more than ten to fifteen seconds' difference, therefore of little practical significance.

3. Neither "Brevidil E" nor "Scoline" has an "all or none" effect. Both are capable of infinite variation of degree of relaxation according to dose. This must be so, as they both act in the same way, that is, by depolarization. Any degree of relaxation from nil to absolute is possible by simple adjustment of dose, which can be accurately predetermined by body weight.

4. In reference to the use of "Brevidil E" and "Cardiazol" together in the same syringe; I have tried this quite successfully, I believe, in the same patient as Dr. Webb. It is interesting to note that convulsion did not occur even with 15 millilitres of "Cardiazol" when sodium thiopentone was used first, but went on to a perfectly modified convulsion when "Cardiazol" and "Brevidil E" were used alone.

I am afraid that I cannot agree to the use of relaxants without sodium thiopentone. I have spoken to about six patients who have received this therapy, and one and all they have been terrified of the choking paralysing sensation that was produced, and this feeling has remained fixed in their memory long after their treatment has ceased. To subject any person, least of all a psychiatric patient, to this mode of treatment seems both unwise and unnecessarily cruel when the use of thiopentone makes the procedure so pleasant. Sodium thiopentone also serves a useful function for the patient who is not to know he is having electro-convulsive therapy.

As to whether unmodified electro-convulsive therapy is outmoded, it seems to me that any treatment which may fracture a patient's spine or dislocate joints is unwise, from the humanitarian point of view as well as the medico-legal one, when modification is such a simple matter. The risk of remote arthritic sequelæ is much more impressive than Dr. Webb makes out, particularly when it can be completely avoided by anæsthesia with relaxants. In over 7000 shocks with relaxants during the last three years the only injuries received have been about four broken teeth, mostly very carious.

The best argument as to whether unmodified or modified electro-convulsive therapy is best is answered by the question: "If it was my wife or myself which would I prefer?" I feel that Dr. Webb forgets that the most important person in any operation is the patient himself. Kindness to a patient and a study of his feelings count a great deal towards diminishing the fears that many people have of mental hospitals.

Dr. Webb also refers to the lack of preliminary oxygen as unnecessary fussing; I would like to point out that there are considerable dangers of anoxia when relaxants are used in the absence of sufficient oxygen and that the absence of

cyanosis does not necessarily indicate anoxia. Also shallow depressed respiration may cause an undue accumulation of carbon dioxide, which in itself is dangerous. If relaxants are used, adequate oxygenation and adequate tidal volume of respiration are essential for safety, more especially so in "poor risk" patients.

Yours, etc.,

Camberwell, Victoria.
Undated.

VAL T. STEPHEN.

A COLLEGE OF GENERAL PRACTITIONERS.

SIR: I had expected some comment to have appeared before this on the letter by "Junior G.P." which appeared in THE MEDICAL JOURNAL OF AUSTRALIA, April 18, 1953, as his remarks should be of importance to all practitioners, whether young specialists or general, and are not without interest to a specialist old in the profession.

He is not correct in saying that general practitioners are denied the benefits of hospital facilities in the capital cities, as an enormous amount of work is carried out in the out-patients as well as in the wards for his patients. It is true and has always been so in the larger metropolitan hospitals with set staffs that he cannot attend his patients in the hospitals, but from all special departments he can receive various reports of increasing complexity to aid him in diagnosis and treatment of his patients, and as regards in-patients a courteous inquiry will always bring a prompt reply as to what has been done for his patients.

I have pointed out elsewhere that the smaller hospitals in either suburbs or country cannot afford the increasing cost of modern diagnostic methods nor of certain forms of treatment, many of which demand the services of highly trained specialists and technicians with access to costly apparatus and expensive as well as time-consuming investigational techniques; so that reliance must always be placed on the larger city hospitals or on base hospitals, as they can extend their staff and equipment.

The general practitioner is a valuable man in the community and carries a big responsibility to see that the best is done for the patients who come for his advice and not necessarily for treatment. If he has honestly fitted himself to carry out certain methods of investigation and treatment, he will offer to do his best for the patient, but he must in all fairness screen those whom he feels competent to treat from those who in his own heart he must know will benefit from specialist advice, quite apart from consigning only the more knotty and rarer problems to the specialist. Personally, I have always regarded my primary duty as a specialist is to assist the general practitioner in the management of his patients, and I am sure this is the general procedure with most specialists, whether it be by letter, telephone or actual consultation. It is not possible for any one man to be an all-round specialist, but the general practitioner should know enough of modern developments to advise his patient as to the man who in his opinion is best able to give expert advice for conditions which may be liable to imperil the well-being, longevity or even the life of the individual concerned. I have just checked the number of hospital beds in New South Wales which can reasonably be expected to be staffed only by general practitioners; and giving them all the base hospitals, all country hospitals, various homes and other institutions, the figures for the beds available to them are 6160, as against 5730 in specialist-staffed hospitals. The latter are nearly always full and with waiting lists, but the same does not apply to the majority of country hospitals, so that the overall figures work out about even. General practitioners have to deal with many emergencies and should have some knowledge of surgical procedures as life-saving measures, but to undertake a major operation such as bowel resection, which is listed as "cold surgery", is courting disaster. We all can and do make mistakes, but the highly trained specialist is likely to make fewer mistakes than the untrained man and would be better able to remedy them with a consequently lowered morbidity and mortality rate. No specialist wishes to usurp the functions, duties and obligations of the general practitioner, but more and more of the country towns with efficient hospitals must expect specialists in various branches of medicine to settle in the district, and the resident practitioners should welcome their coming if only to share responsibility and not show jealousy and hostility. The trend to specialism is increasing and necessarily so to cope with modern advances, but in larger towns a group practice or clinic could be run with individual members fitting themselves by post-graduate study to embrace certain branches of medicine for which they have an inclination or aptitude. This is already being done in some of the larger towns most successfully.

It would be of inestimable value to the community if all base hospitals could have specialist staffs in part, not to exclude the general practitioners as seems to be happening in England, but to work with them for mutual benefit. As an example I would point out the enhanced prestige of the Royal North Shore Hospital today as compared with thirty years ago.

I would advise a general practitioner against treating surgically patients with carcinoma, as even in the most skilled hands recurrences occur, and when you have to see them through the ghastly final stages there must occur to any man with a shred of conscience the thought that "this life may have been saved if I had not been so cocksure of my own ability". This applies especially to carcinoma of the breast, the uterus and the colon.

In conclusion, I would advise "Junior G.P." to read, mark, learn and inwardly digest that very thoughtful address by Dr. Angus Murray published in THE MEDICAL JOURNAL OF AUSTRALIA, May 2, 1953.

Yours, etc.,

225 Macquarie Street, Sydney,
May 8, 1953.

HUGH POATE.

COMPULSORY CHEST X-RAY EXAMINATION.

SIR: I would like to draw your attention to a proclamation recently gazetted which compels all citizens over the age of fourteen years to undergo a "free" chest X-ray examination. Non-compliance apparently carries a fine of £20.

I should like to ask several questions:

1. Is the proclamation designed to overcome the possibility of "assault" should any citizen be unwilling to undergo a medical examination of this type?

2. Is there any safeguard against a citizen giving a fictitious name and address?

3. If a wage-earner is compelled to undergo the examination and is found to be suffering from pulmonary tuberculosis, how does the Government propose to compensate him, or her, or the family, for their financial loss during a prolonged period of treatment? (This, I feel, is the greatest social problem of all which must inevitably follow compulsion imposed by any government.)

4. Is there adequate sanitoria or hospital accommodation for the extra tuberculosis cases which may be discovered throughout the Commonwealth?

5. And lastly—how many young neurotics will be added to the already overcrowded ranks by the discovery in youth or early adult life of a harmless Ghon's focus?

Yours, etc.,

147 Macquarie Street, Sydney,
May 14, 1953.

D. G. MAITLAND.

EFFECTS OF SHOES ON FOOT FORM: AN ANATOMICAL EXPERIMENT.

SIR: I was extremely interested in the article by F. W. Knowles on "Effects of Shoes on Foot Form: An Anatomical Experiment" in the issue of April 25, 1953, and I would like to congratulate him on the interesting results of his excellent effort.

Orthopædic surgeons in particular are well aware of the deforming qualities of the modern shoe, particularly those designed to enable the female of the species to outdo her competitors in the field of fashion. For every man an orthopædic surgeon treats for deformities of the foot reasonably attributable to faulty footwear, he treats at least 100 women. I myself have no doubt whatsoever that this disparity is due to the shape of the shoe.

Some years ago the Australian Orthopædic Association endeavoured to get shoe manufacturers interested in the manufacture of properly shaped shoes for children—I believe that its efforts were unsuccessful. What chance then have

we of getting properly shaped shoes made for women? And even if the manufacturer would make them we would then have to face the proposition that it is extremely difficult to persuade a woman, although suffering very severely with foot trouble, to wear a shoe which approaches even mildly the broad-toed type which is the first essential in an anatomically shaped shoe.

My point is that it is not lack of knowledge on the part of the medical profession, but the apparent hopelessness of getting cooperation from shoe designers and female patients. It seems to me that intensive publicity is the only way to approach this problem; to get the people themselves to demand properly shaped shoes: but again I fear the stumbling block is the woman. So what?

Yours, etc.,
McKELLAR HALL, F.R.C.S.E., F.R.A.C.S.

224 St. George's Terrace,
Perth,
May 7, 1953.

AN APPEAL FOR AN OXFORD VAPORIZER.

SIR: It may be that one of your readers has an Oxford vaporizer which he no longer uses or needs. Although this machine has been superseded in this country, it is of considerable value in a mission hospital. If any doctor who wishes to dispose of such a machine would like to donate it to the Church Missionary Society for use in one of its hospitals, his action would be greatly appreciated.

Yours, etc.,
JUDITH TERRY.

C.o. Church Missionary Society,
93 Bathurst Street,
Sydney.
May 13, 1953.

Obituary.

LEO DOYLE.

LEO DOYLE died in Melbourne on March 3, 1953. He was born in 1891. His undergraduate medical training was obtained in the University of Melbourne, his clinical instruction being received at Saint Vincent's Hospital, Melbourne, when it had just been made a clinical teaching hospital. After qualifying in medicine and surgery in 1913, he was appointed a resident medical officer at Saint Vincent's Hospital, where in 1914 he became a registrar. In the same year, soon after the outbreak of the first World War, he was attached as surgeon to the hospital ship *Grantala*. He was a resident medical officer at the Women's Hospital, Melbourne, in 1916. In 1917 he obtained the degree of Master of Surgery in the University of Melbourne, and was appointed Beaney Scholar in Pathology in the same university. Appointment to the honorary surgical staff at Saint Vincent's Hospital came in 1917, and subsequently he became dean of the hospital's medical school. He was a Fellow of the Royal Australasian College of Surgeons and an examining surgeon for the University of Melbourne.

Dr. Raymond Hennessey writes: When I first met Leo Doyle he was a student and had just completed his fourth year, and I was very closely associated with him afterwards. I assisted him in his first thyroidectomy and his first gastro-enterostomy in private practice, and the last operation which he performed within twenty-four hours of his death was on one of my patients.

It is no figure of speech to say that he was a born surgeon. He did not have to learn operative surgery laboriously like most of us; it seemed to come to him intuitively. With increasing experience, his skill and proficiency became extraordinary, and during the last years of his life his operative technique was superb and delightful to watch.

In assessing Doyle's career it is helpful to recall the conditions under which he began practice. When he entered Saint Vincent's Hospital as a student, among his teachers in surgery were Murray Morton, Douglas Shields, Thomas Dunhill, Hugh Devine and Julian Smith. Most of this group achieved international fame. At this time surgery was emerging from carnivorous crude operative technique to the gentle bloodless handling of tissues. Doyle was a natural dissector, and his talents were particularly displayed in operations such as block dissection of the neck and mammary cancer. He was also a pioneer and very adept at local anæsthesia, for which he was always a great enthusiast. This was caused partly by necessity and partly by choice. A considerable amount of his early work was necessarily done in the out-patient department, and beds in those days being almost unprocurable for junior members of the staff, it was a great advantage to be proficient in local anæsthesia. I well remember seeing him remove a cervical rib under local anæsthesia in the out-patient theatre, the patient being sent home in a cab afterwards. He frequently carried out extensive removal of glands of the neck for epithelioma of the lip and tuberculosis under local anæsthesia in the out-patient department.

An outstanding feature of his operative work was his extraordinary versatility. He was in the literal sense a general surgeon and seemed to operate with equal confidence in the head, thorax, neck, abdomen, and even the female pelvis. He was extremely deft at surgical procedures such as endoscopy and injections. In the early days of his career the method of giving "Salvarsan" was by means of gravity. It was observable that most of these intravenous injections were sent over to Doyle's clinic because he was the only member of the staff who could give six or seven "Salvarsan" injections in quick succession without spilling any into the tissues and without cutting down on the vein, no mean achievement with the crude apparatus then available.

When Doyle became in-patient surgeon, naturally his range of surgery was much greater. He did a large amount of gastric surgery and latterly œsophageal and lung operations. He performed over twenty laryngectomies under local analgesia and with a very small mortality. He was *par excellence* a cancer surgeon and would perform formidable and extensive operations courageously and hopefully, but like many other surgeons of extreme ability his judgement at times was open to question.

During a visit to the United States of America Doyle became interested in Adson's work on the fifth nerve. I have several times seen him perform with characteristic neatness and skill the classical operation for the relief of *tic douloureux* by section of the sensory root. One evening in 1935 at the Mercy Hospital I saw him perform under local anæsthesia Dandy's operation of resection of the choroid plexus for congenital hydrocephalus in a young infant. The following week he operated on the other side. The child survived for eight years, when it died from complications following measles.

At his death Doyle possessed a collection of surgical apparatus and instruments which is probably unsurpassed in Australia. They were all of the highest quality and kept in perfect order. He spared no expense in adding to or replenishing his equipment.

He was a great journal reader; I think he subscribed to every surgical journal written in English, and he dipped into them all. He was perhaps better described as well-informed than well-read in surgical literature. He had no talent for ready self-expression. He was not a successful teacher of undergraduates, and his operative technique and skill were rather too subtle for their appreciation. He was modest about his skill and, like Elia's father, he was a man of losing honesty. When first he came into mixed company he would be shy almost to awkwardness. He was tall and of very handsome appearance. His hands were small and exquisitely shaped.

No account of his character can omit reference to his integrity and his spiritual life. He was an active, humble and faithful member of his church, whose teachings he accepted without question and daily put into practice. At the funeral service the Cathedral Church of Saint Patrick was thronged with friends, colleagues and patients who, having admired his work and loved him during his life, lamented his death.

Sir Hugh Devine writes: Aside from his professional attributes—his great skill as a surgeon, his deep knowledge of the principles that govern surgery, his unusual ability to select from the medley of modern surgery those things that mattered—Leo Doyle was a very human person with an open and pleasing personality which enriched his surgical results. Thoroughly wrought in him, too, was an intense pride in his *Alma Mater*—his hospital clinical school. He had come into Saint Vincent's Hospital as its first medical student when it was founded as a university clinical school. He was the first graduate of the school to succeed to the honorary staff. It was therefore not unnatural that he should feel that he was almost an integral part of the hos-

pital and that he should subconsciously practise that devotional responsibility for the welfare of his patients, and that keen personal interest to teach and to inspire the medical student to be a credit to his *Alma Mater* and a blessing to his patients in the future. It was this complex—his kindly soul, his inherent humanity, his hospital-proud spirit—which paved the way to his achievements in his profession. It endeared him to his patients, conquering their fears and softening the rigours of his surgery; and it reached the hearts of his students, enabling him to focus their minds and shape their futures. Thus, he was a kindly sphere of influence rich in human results. He played a notable part not only in undergraduate but also in post-graduate education. Many doctors throughout Australia owe much to his thoughtful teaching.

In his school years he laid the foundation of a fruitful life. He had a distinguished university course, obtaining honours which included the Beaney Scholarship in Pathology, the blue riband of undergraduate medicine. He was much travelled, and he had a literary turn of mind and was well known in surgical literature. Golf (in which he excelled) and reading took up his spare time and lightened a sacrificial life of medical service.

I have always been proud to think that, in my earlier teaching days, with others I was associated in his surgical education. Mr. Leo Doyle's name will long be honoured in the hospital which he served so faithfully and in the profession which he adorned so well.

NORMAN CHARLES CUNNINGHAM.

WE have received from Dr. Selwyn Nelson the following appreciation of the late Dr. Norman Charles Cunningham.

Norman Cunningham loved little children. His work as a pædiatrician brought him continual joy. He devoted himself to the welfare of his young patients, and they and their parents will miss his kindly interest.

He came up to the University of Sydney from Sydney Boys' High School in 1925 and graduated M.B., B.S. in 1930. He was appointed to the resident medical staff of the Royal Prince Alfred Hospital, where his interest in children was soon apparent to his fellows. For the next three years he held resident appointments on the staff of the Royal Alexandra Hospital for Children. In 1935 he was appointed honorary clinical assistant to the Department of Medicine, Royal Prince Alfred Hospital. He was unfit for military service, but during the war years he worked hard and long as a relieving physician.

He was for several years honorary pædiatrician to the Women's Hospital, Crown Street. In 1946 he was appointed senior honorary physician to the Royal Prince Alfred Hospital and lecturer in the care of the newborn to the King George V Memorial Hospital for Mothers and Babies. He was honorary consultant pædiatrician to the Saint George Hospital and to the Hornsby District Hospital.

He was among the first to be admitted to membership of The Royal Australasian College of Physicians by examination. He was elected to Fellowship in 1947.

His other interests were wide and included the board of management of his church, Freemasonry, the Saint John Ambulance Association and the Queen Victoria Maternity Hospital, Annandale.

In 1936 he married Myfanwy, daughter of Dr. and Mrs. W. H. Read. There are two daughters and a son.

Even at school the illness which was to burden him throughout his professional life was apparent. His boundless energy and cheery personality hid from all but his intimate friends his continual ill-health. A protracted series of surgical operations kept him in hospital for a large part of 1949. Here his fortitude was an example to all. The promise of lasting improvement in health was not fulfilled. His untimely death at the age of forty-six years is deeply regretted by his many friends.

Dr. S. Devenish Meares writes: Norman Cunningham died on March 27, 1953, at the age of forty-six years—at about the age most physicians are looking forward to the responsibilities and honours of senior status. It is not my intention, however, to record that he was a gifted pædiatrician, or that he was the first senior pædiatrician at the Royal Prince Alfred Hospital, but just to tell of the quality of the man himself. His was a life full of constant courage—not the courage seen in a sudden act of heroism performed before the brain has time to weigh the cost, not the courage that has been screwed up for one short burst, but the continued calculated courage that maintains morale in the force of recurring and increasing adversity. For it was early in his medical course with his own eyes and in the light of his growing medical knowledge that he first saw the cloud which was to menace his health throughout life. He remained undaunted in the face of indifferent health with many vicissitudes throughout the years, and confronted at times with the need to undergo multiple and formidable surgical procedures. He rarely spoke of his health and would return from the valley with all his usual bonhomie and joy of life. In twenty-two years since graduation his would have been a remarkable career for one in full health; for him it was a triumph of the spirit. With courage walked humility. Having heard that he had been offered the position of elder of the kirk, I congratulated him, but he said: "I refused. I am not good enough to be an elder."

His was the cheerful simple nature that children instinctively trusted, his the sympathy born of fellow suffering, and his the gentle gift of healing. Many the child and parent who feels at a loss without him, and many the colleague who will remember his helpful friendship as the days go by.

Dr. S. P. Bellmaine writes: Although his friends knew of the serious illnesses which he had suffered, Dr. Norman Cunningham bore these setbacks with equanimity and lived his life so cheerfully that his sudden death, on March 27, at the early age of forty-six years, seemed doubly tragic. Early in his medical life Cunningham decided to specialize in pædiatrics, and it was a wise choice, for children of all ages were drawn to him, and he loved them. He was keenly interested in the scientific aspect of his subject, as his published work bears witness, and he was deeply appreciative of his election to Fellowship of The Royal Australasian College of Physicians and to the presidency, for 1952, of the Pædiatric Section of the New South Wales Branch of the British Medical Association.

Medicine is an art as well as a science, and in no sphere is this more so than in pædiatrics. As an exponent of the art, Cunningham was outstanding, with his kindness, wisdom and understanding. He was an admirable colleague, incapable of an unkind or selfish thought or motive, and naturally popular. From the inception of the hospital he devoted himself to the problems of the newborn in King George V Memorial Hospital for Mothers and Babies, and it is fitting that the "Fourth Special Nursery" in that institution has been renamed, in his memory, the "Norman Cunningham Nursery".

He leaves a widow, two daughters and one son, and their grief is shared by many who knew, worked with or were treated by this good Christian doctor.

ARTHUR GERARD ANDERSON.

WE have received from Dr. E. S. Meyers the following appreciation of the late Dr. Arthur Gerard Anderson.

I had occasion to consult a reference in the article on Murray Valley encephalitis (THE MEDICAL JOURNAL OF AUSTRALIA, April 4, 1953) by S. G. Anderson and Mary Eagle. This was a reference to the article of Dr. A. G. Anderson (1917), "Some Remarks on the Occurrence of the 'Mysterious Disease' in Southern Queensland". By a strange coincidence, the day I looked up this reference the news came to us of the death of Dr. A. Gerard Anderson. The article in question gave a very careful account of an epidemic of 14 cases of the "mysterious disease" occurring in the Goondiwindi district of Queensland.

I first met Dr. Anderson in Frazer's Camp after his return from service with the Australian Army Medical Corps (Australian Imperial Force) in 1915 or 1916. Soon after 1921 he came to practise at Red Hill in Brisbane and was appointed an assistant honorary surgeon at the Brisbane Hospital. In the period between the two wars he rendered service at the hospital for many years and ultimately attained the position of senior honorary surgeon. He was one of the last of the men who were general practitioner surgeons in Brisbane, and the same thoroughness which is revealed in his article in 1917 characterized all his work. He was very alert and keen and well up with all the advances in surgery. Whatever he did was done with keenness and enthusiasm, whether he was sitting as a member of the committee of the British Medical Association, serving on assessment appeal tribunals or engaged in sport or enjoying social life. In earlier years he was a golfer and presented the A.I.F. Cup for competition among returned soldiers. In the early twenties he took part in cricket matches between

the honorary and the resident medical staffs of the Brisbane Hospital, matches which were enjoyed by members of the teams and their wives in those easier-going days. In later life he took up bowls and was very successful at it and took part in very many of the matches between the doctors, dentists and chemists for the Bosch Bartel Cup. He was one of a band of the very best type of medical man and will be missed as a good companion by his old colleagues.

Public Health.

RADIOLOGICAL EXAMINATION OF THE LUNGS.

THE following proclamation is published in the *New South Wales Government Gazette*, Number 80, of April 24, 1953.

I, Sir John Northcott, Knight Commander of the Most Distinguished Order of Saint Michael and Saint George, Companion of the Most Honourable Order of the Bath, Member of the Royal Victorian Order, Lieutenant-General on the Retired List of the Australian Military Forces, Governor of the State of New South Wales and its Dependencies in the Commonwealth of Australia, in pursuance of the provisions of the Public Health (Amendment) Act, 1952, and with the advice of the Executive Council, do by this my Proclamation, direct all persons over the age of fourteen years, residing in the Wards of the City of Sydney named in the Schedule hereunder, and who have not had their lungs radiologically examined within six months of the date of this Proclamation, to submit themselves to radiological examination of their lungs, within the specified times and at one of the places specified in the Schedule applicable to the Ward in which they reside, between the hours of 10 a.m. to 4 p.m. and 5 p.m. to 8 p.m., excepting Saturdays, Sundays or Public Holidays.

Signed and sealed at Sydney, this 15th day of April, 1953.

By His Excellency's Command,

M. O'SULLIVAN.

SCHEDULE.

Ward.	Time.	Place.
Flinders ..	7th May, 1953, to 13th May, 1953, inclusive.	Cr. Moore Park and Cook roads. Cr. Devonshire and Nickson streets. Cr. Foveaux and Commonwealth streets. Cr. Fitzroy, Bourke and Foveaux streets.
Paddington	22nd May, 1953, to 28th May, 1953, inclusive.	Liverpool street between Gipps and Spring streets. Glenmore road and Gurner street, Five Ways. Cr. Elizabeth street and Windsor street. Cr. Oxford and Newcombe streets.
Redfern ..	8th June, 1953, to 12th June, 1953, inclusive.	Cr. Redfern and George streets, opposite Post Office. Cr. Redfern and Moreland streets, Redfern. Adjacent new Housing Commission Flats. Cr. Primrose avenue and Harcourt parade, Rosebery. (Rosebery Park.) Waterloo Town Hall. Cr. Elizabeth and Kellick streets, Waterloo.
Alexandria	23rd June, 1953, to 29th June, 1953, inclusive.	Cr. Mitchell road and Renwick street, Alexandria. Cr. Erskineville road and John street at Erskineville Railway Station. Cr. Princes Highway and Alice street, Camdenville. Cr. Botany road and Reserve street, Alexandria.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 24, of April 23, 1953.

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps.

Captains (provisionally) 3/40109 A. O. Donald and 3/40110 J. M. McKenna are appointed from the Regular Army Special Reserve, and to be Captains, 24th December, 1952, and 30th December, 1952, respectively, with Short Service Commissions for a period of two years.

2/40151 Captain R. J. Burns is appointed from the Regular Army Special Reserve, and to be Captain, 22nd January, 1953, with a Short Service Commission for a period of one year.

4/8035 Captain (provisionally) R. C. McKinnon is appointed from the Active Citizen Military Forces, and to be Captain, 16th February, 1953, with a Short Service Commission for a period of two years.

The Short Service commission of 2/40109 Captain L. L. Nordstrom is extended to 10th March, 1953. 2/40109 Captain L. L. Nordstrom is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (2nd Military District), 11th March, 1953.—(Ex. Min. No. 74—Approved 17th April, 1953.)

Regular Army Special Reserve.

Royal Australian Army Medical Corps.

VX700320 Captain (provisionally) D. N. Hawkins is transferred from the Citizen Military Forces, 2nd January, 1953.

VX700321 Captain (provisionally) J. B. Drake relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District) in the honorary rank of Captain, 17th February, 1953.

To be Captain (provisionally), 2nd January, 1953.—VX700321 John Barry Drake.

NX700415 Captain (provisionally) A. C. Bowring relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (2nd Military District) in the honorary rank of Captain, 25th December, 1952.

Citizen Military Forces.

Northern Command: First Military District.

Royal Australian Army Medical Corps (Medical).—1/61809 Captain J. F. Gillogley is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (1st Military District), 19th February, 1953.

1/55108 Major D. C. C. Sword is absorbed in a vacancy within the authorized establishment of Majors, and to receive pay and allowances of that rank, 7th November, 1952. To be Captain (provisionally), 25th March, 1953: F1/1008 Patricia Isobel Evans. To be Lieutenant-Colonel (provisionally), 9th March, 1953: 1/55108 Major D. C. C. Sword.

Eastern Command: Second Military District.

Royal Australian Army Medical Corps (Medical).—The following officers are appointed from the Reserve of Officers and to be Captains (provisionally): Honorary Captains 2/56841 S. L. Mayne, 29th January, 1953, and 2/127043 A. R. Doutreband, 19th February, 1953. The following officers relinquish the provisional rank of Captain and are transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (2nd Military District) in the honorary rank of Captain: 2/127021 J. G. Markus, 4th December, 1952, and 2/61547 S. J. Iceton, 19th January, 1953. 2/165475 Captain I. G. Simpson is appointed from the Reserve of Officers, 28th January, 1953. To be Captains (provisionally): 2/127883 John Talbot Dunn, 13th March, 1953, 2/79109 Rene Lionel Manning, 23rd March, 1953, with regimental seniority next after 2/108162 Captain J. Cameron, and 2/146600 Robert George Robertson Sim and 2/146601 William John Hock, 25th March, 1953. To be Temporary Lieutenant-Colonel, 9th March, 1953: 2/165475 Captain I. G. Simpson.

Southern Command: Third Military District.

Royal Australian Army Medical Corps (Medical).—3/101020 Captain (provisionally) D. N. Hawkins is transferred to the Regular Army Special Reserve, 2nd January, 1953. 3/157150 Lieutenant-Colonel C. A. M. Renou is appointed from the Reserve of Officers, is appointed to command 2nd General Hospital, and to be Temporary Colonel, 23rd December, 1952. The following officers are appointed from the Reserve of Officers, 23rd December, 1952: Lieutenant-Colonels 3/157151 H. A. Phillips and 3/157152 J. E. Clarke. To be Captain (provisionally), 13th March, 1953: 3/101023 Kenneth John Neerhut.

Central Command: Fourth Military District.

Royal Australian Army Medical Corps (Medical).—The provisional ranks of the following officers are confirmed: Captains 4/31988 R. A. Barter, 4/31927 S. C. Milazzo, 4/31987 R. T. W. Reid and 4/31995 J. G. Sweeney. The following officers are appointed from the Reserve of Officers, and to be Captains (provisionally): Honorary Captains 4/32036 T. H. Beare, 18th February, 1953, and 4/32035 R. Britten-Jones, 19th February, 1953. To be Major, 5th March, 1953: 4/32033 John Hamilton Stace. To be Captain (provisionally), 17th March, 1953: 4/32038 Remington John Pyne.

Western Command: Fifth Military District.

Royal Australian Army Medical Corps (Medical).—To be Captain (provisionally), 24th February, 1953: 5/26518 William Norman Gilmour.

Tasmania Command: Sixth Military District.

Royal Australian Army Medical Corps (Medical).—6/15365 Captain (provisionally) B. M. Andrea relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (1st Military District) in the honorary rank of Captain, 17th February, 1953. 6/15379 Honorary Captain K. S. Millingen is appointed from the Reserve of Officers, and to be Captain (provisionally), 3rd March, 1953.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps.

1st Military District.—Lieutenant-Colonel G. H. Brandis is placed upon the Retired List (1st Military District) in the honorary rank of Colonel and with permission to wear the prescribed uniform, 23rd October, 1951. To be Honorary Captains: Bryan Thomas Emmerson and Ellis Charles Pixley, 24th February, 1953, Sidney William Page, 5th March, 1953, Campbell Villiers Brown, 9th March, 1953, and Gavan John Carroll, 12th March, 1953.

2nd Military District.—To be Honorary Captains: Bertram Kendall Hope, 30th January, 1953, George Warwick Steele, 16th February, 1953, and Harry Meldrum Learoyd, 12th March, 1953.

3rd Military District.—To be Honorary Captains, 31st January, 1953: Maxwell Kent, Charles Irwin Slade and James Patrick O'Sullivan.

2nd Military District.—To be Honorary Captains: Ian Charles McKinnon, 4th March, 1953, Kenneth Halford Mackey, 2nd March, 1953, and Francis Jennis, 30th March, 1953.

3rd Military District.—To be Honorary Captains: Norman Alexander Davis, 28th February, 1953, and Jack Martin Kirkman, 2nd March, 1953.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Kelly, Douglas Heron, M.B., B.S., 1950 (Univ. Sydney), Barton Street, Cobar, New South Wales.

Wilson, Dennis de Courcy, M.B., B.S., 1949 (Univ. Adelaide), 465 William Street, Broken Hill, New South Wales.

Genzel, Juliusz, provisionally registered in accordance with the *Medical Practitioners Act*, 1938-1950, Section 17 (1) (*c*), 234 Campbell Parade, Bondi Beach.

The undermentioned have been elected as members of the New South Wales Branch of the British Medical Association: Bullock, John Howard, M.B., B.S., 1953 (Univ. Sydney); Ford, Joyce Margaret, M.B., B.S., 1953 (Univ. Sydney); Gibson, Alan Hugh, M.B., B.S., 1953 (Univ. Sydney); O'Gorman Hughes, Darcy William, M.B., B.S., 1953 (Univ. Sydney); Parle, John Frederick, M.B., B.S., 1953 (Univ. Sydney); Ralston, Marion Graham, M.B., B.S., 1953 (Univ. Sydney); Ruut, Felix, M.B., B.S., 1953 (Univ. Sydney); Sinclair, Morris Mowat, M.B., B.S., 1953 (Univ. Sydney); Coppleson, John Victor Malcolm, M.B., B.S., 1950 (Univ. Sydney); Maloney, Peter John, M.B., B.S., 1952 (Univ. Sydney); McLaughlin, John Mannix, M.B., B.S., 1952 (Univ.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED APRIL 25, 1953.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	4(2)	4(4)	..	..	..	..	..	..	8
Amœbiasis	..	1	..	1(1)	..	..	..	..	2
Ancylostomiasis	..	..	..	..	..	..	1	..	1
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	1(1)	..	..	..	..	..	..	..	1
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	5(5)	..	11(11)	..	..	..	1	..	17
Diphtheria	10(6)	3(3)	4(3)	..	6(3)	..	..	..	23
Dysentery (Bacillary)	..	3(2)	1(1)	40(10)	1	..	..	..	45
Encephalitis	..	..	..	..	..	..	..	..	..
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	..	9(2)	..	..	10(6)	..	..	..	19
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	1	..	9(1)	..	..	..	..	..	10
Malaria	..	..	4	..	..	..	..	..	4
Meningococcal Infection	4(4)	4(1)	..	..	..	..	..	..	8
Ophthalmia	..	..	..	..	3	..	..	..	3
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	1	..	..	..	..	..	..	..	1
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	9(4)	6	9(2)	11(8)	..	1	..	..	36
Puerperal Fever	2	..	5(5)	..	..	..	..	..	7
Rubella	..	20(16)	..	..	..	..	1	..	21
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	9(3)	79(50)	1	4(3)	2(2)	..	..	2	97
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1(1)	..	..	..	..	..	1
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	71(52)	42(26)	14(6)	6(4)	7(5)	7(4)	3	2	152
Typhoid Fever	..	..	1	..	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	1	..	..	..	1	..	..	..	2
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

Sydney); Northcott, Geoffrey Charles, M.B., B.S., 1951 (Univ. Sydney); O'Brien, Patrick Aloysius, L.R.C.P. (Edin.), 1950, L.R.C.S. (Edin.), 1950, L.R.F.P.S. (Glasg.), 1950; Paver, William Kenneth Amedee, M.B., B.S., 1952 (Univ. Sydney); Weinreb, Alfred, registered in accordance with the *Medical Practitioners Act*, 1938-1950, Section 17 (1) (*c*).

The undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Doddridge, Albert Keith, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952), 1 Seventh Avenue, St. Peters, South Australia.

Westphalen, Kenneth John, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952), 19 Ralph Avenue, West Croydon, South Australia.

Halloran, Noel, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952), 313 Magill Road, Trinity Gardens, South Australia.

Hamden, William Calil, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952), 146 Park Terrace, Wayville, South Australia.

Symes, William David, M.B., B.S., 1952 (Univ. Adelaide) (qualified 1951), Essington Lewis Avenue, Whyalla, South Australia.

The undermentioned have been elected as members of the South Australian Branch of the British Medical Association: Handley, Donald Alfred, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952); Riley, John, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952); Harris, James Dunbar, M.B., B.S., 1953 (Univ. Adelaide) (qualified 1952).

Congresses.

ITALIAN CONGRESS OF STOMATOLOGY.

THE twenty-eighth Italian Congress of Stomatology will be held in Bari, Italy, from October 13 to 17, 1953. Topics to be dealt with by the congress are as follows: (i) "The Focal Dental Infection", Professor M. Lusena (Milan), Professor B. Mela (Turin). (ii) "Economic and Social Handicaps Arising from Dental Caries", Professor G. Briasco (Genoa), Professor L. Molfino (Genoa). (iii) "The Fixed Prosthesis", Dr. F. Strini (Rome), Dr. G. Zuccoli (Florence). An international exhibition of specialized dental, medical and surgical equipment will be held as a part of the congress. Arrangements for the congress are being made by the dental clinic of the University of Bari in cooperation with the A.M.D.I. of Puglia and Lucania. Inquiries should be addressed to 28th Congresso Italiano di Stomatologia, Palazzo Ateneo, Bari.

Medical Prizes.

AUSTRALIAN ORTHOPÆDIC ASSOCIATION'S PRIZE.

THE Australian Orthopædic Association will award its prize for 1954 of twenty-five guineas for the best original and unpublished essay on "The Treatment of Pott's Fracture and a Study of End-Results". Entrants for this prize are to be either sixth year medical students or graduates of not more than five years' standing at the date of closure. The essay shall not exceed 5000 words, and if no essay is deemed of sufficient merit, the committee retains the right to withhold the prize. The publication rights of the essay shall belong to the Australian Orthopædic Association.

Essays shall be typewritten with double spacing and should be in triplicate; they should be forwarded under a pseudonym to the Honorary Secretary, Dr. A. R. Hamilton, 135 Macquarie Street, Sydney. A separate sealed envelope should be enclosed containing the name and address of the candidate, together with the pseudonym used. Entries will close on March 31, 1954.

Medical Appointments.

Dr. J. M. M. Gunson has been appointed clinical assistant in the Tuberculosis Services of the Hospitals Department of South Australia.

Dr. E. S. J. King has been appointed a member of the Advisory Committee to the Mental Hygiene Authority, pursuant to the provisions of Section 16 (2) (*f*) of the *Mental Hygiene Authority Act*, 1950, of Victoria.

Dr. G. H. McQueen has been appointed honorary visiting epidemiologist to the Infectious Diseases Wards at Northfield, Royal Adelaide Hospital.

Diary for the Month.

JUNE 3.—Victorian Branch, B.M.A.: Branch Meeting.
JUNE 3.—Western Australian Branch, B.M.A.: Council Meeting.
JUNE 4.—South Australian Branch, B.M.A.: Council Meeting.
JUNE 5.—Queensland Branch, B.M.A.: General Meeting.
JUNE 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 305 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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